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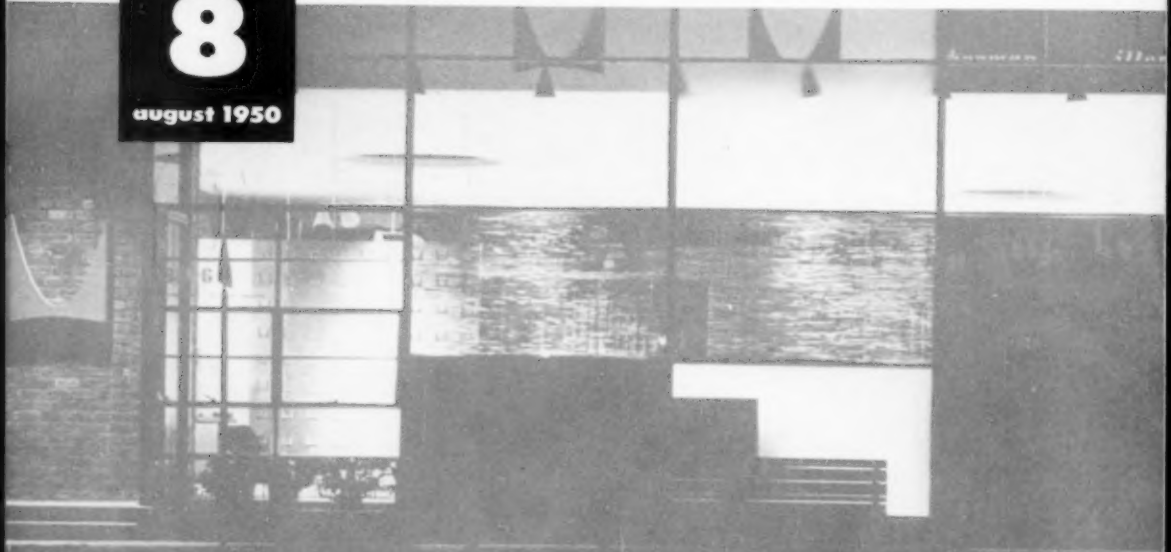

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newsletter

AUGUST 1950

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- Total construction for first 25 weeks of 1950 is $5 1/3 billion, 43% above last year's similar period. Public works is up 19%, private construction up 70%, according to Engineering News Record figures.

- Bookings of fabricated structural steel for the first five months of the year were 762,000 tons, 26% greater than same period in '49. However, shipments dropped 11%. Thus backlog of orders booked for future fabrication has greatly increased.

- Some realtors, builders, and even some building owners, are becoming alarmed about the "boom" proportions of commercial building activity in many parts of the country. Lee Thompson Smith, president of Real Estate Board of N.Y., for instance, speaking to Natl. Assn. of Building Owners and Managers, said that today's situation "has all the earmarks of being bolder and lustier than the notorious expansion that began around 1925."

- President Truman has revised membership of Federal Fine Arts Commission. Gilmore Clark, landscape architect, William D. Aldrich and L. Andrew Reinhard, architects, and Lee Lawrie, sculptor, are replaced as members by Dean Joseph Hudnut of Harvard, Pietro Belluschi of Portland, Ore., and Edward F. Neild, Sr., of Shreveport, La., architects, and Felix W. de Weldon, sculptor.

- One of the dropped members is consoled by the fact that his firm, Reinhard, Hofmeister & Walquist, is designing a 32-story addition to the Chrysler Building in New York, to go east of the present structure.

- Alcoa anti-trust case has finally been settled; Alcoa will not be required to sell some plants, as requested by Dept. of Justice; company's patent structure and royalty terms were upheld; however, court retains jurisdiction over case for five years, in case competition (primarily Reynolds and Kaiser) becomes "feeble, uncertain or ineffective."

- Another anti-trust question was left somewhat unsettled when President Truman vetoed S-1008, a bill which would have permitted manufacturers to absorb freight costs and quote identical delivered prices, if done without collusion. This means that recent FTC rulings against freight-absorption practices in several cases still stand, and many manufacturers remain confused.

- Personalities: George Fred Keck, Chicago architect, has been given honorary degree of Doctor of Fine Arts by Lawrence College. Hugo Leipziger-Pearce, professor of architecture at U. of Texas, is abroad for three months on a special assignment from the Dept. of State, as educational and planning and housing consultant. William Hennessey has left position as architectural editor of American Home. Sigfried Giedion has sailed for home (Switzerland) after lecture assignment at M.I.T. Alfred Roth, his guest assignment at Washington U. in St. Louis completed, is also leaving for his Swiss home, practice, and editorial job.

(Continued on page 2)

newsletter

- Producers' Council has prepared bibliography of construction films available from building products manufacturers. 63 films put out by 27 companies are described; list should be valuable for those preparing meetings.

- Several manufacturers are working on a new sandwich curtain-wall material to be surfaced with porcelain enameled steel.

- An "architectural designer" in Great Neck, N.Y., will come up for trial in September on charges of practicing architecture without a license. Joseph E. Prisant, who was arrested on complaint of the State Department of Education and released in bail, is quoted as saying that for his house clients "there is no difference between a designer and an architect."

- Jobs for top-flight architectural men outside the big eastern and midwest centers are going begging. Hiatus in architectural training during war period is now beginning to show in age gap among available men. Postwar graduates are not yet sufficiently experienced to take key jobs that are opening in many offices.

- The Society of Contemporary Designers, 914½ South Alvarado St., Los Angeles, Calif., announces its first annual exhibition, of graphic, industrial, and architectural design. The show will be held from Oct. 1 to Nov. 1, in L.A., and will be well publicized.

- A.I.A.'s questionnaire, to begin the 1950 Survey of the Architectural Profession, under the auspices of the special commission set up by president, Ralph Walker, will be mailed shortly. It should gather together much valuable information, if the architects respond to it seriously and in full numbers. Questions are based on check system which can be tabulated by I.B.M. machine methods.

- HHFA announces a number of additional research projects, to be conducted by various bureaus, departments, and universities. Among them is an interesting pilot study of the housing needs of a middle-sized industrial area to be made by U. of Miami (Fla.) in an effort to find a simple low-cost technique for short-term forecasting of housing demand, for the benefit of everyone connected with building.

- Another study, to be made by the U.S. Weather Bureau, is inspired by the fact that snow-load requirements are completely inconsistent in building codes. For instance, three N.Y. cities in the same climatic area require respectively 30 lb., 40 lb., and 50 lb. design. Some southern cities call for greater design strength than some in the north. Actual measurements will be made in the study.

- American Hospital Association Convention will be in Atlantic City, N.J., again this year--September 18 to 21. Morning sessions on the 18 and 19 will be devoted to architect's problems, and the all-day regular session of the convention on Wednesday will be on design and construction matters. This year an architectural exhibit will be hung, screened by a competent jury and with A.I.A. approval. Entries are invited, either through the A.I.A. or the A.H.A., 18 E. Division St., Chicago 10, Ill.

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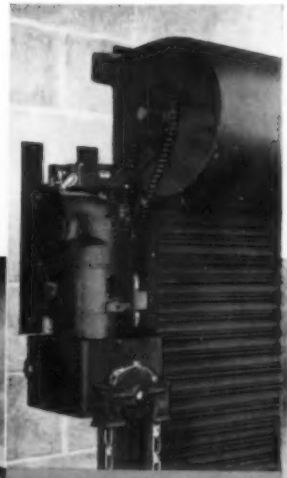

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2. Nairn Linoleum makes this floor in the Hackensack General Hospital, Hackensack, New Jersey, quiet and foot-easy . . . satin-smooth surface eliminates dirt- and germ-catching crevices.

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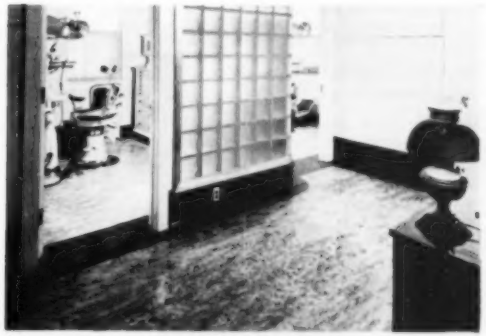

4. An interior of the suite of Dr. J. D. Ross, Arlington, New Jersey, shows how Nairn Linoleum with one-piece cove base and border insures cleanliness, easy maintenance, enduring beauty.

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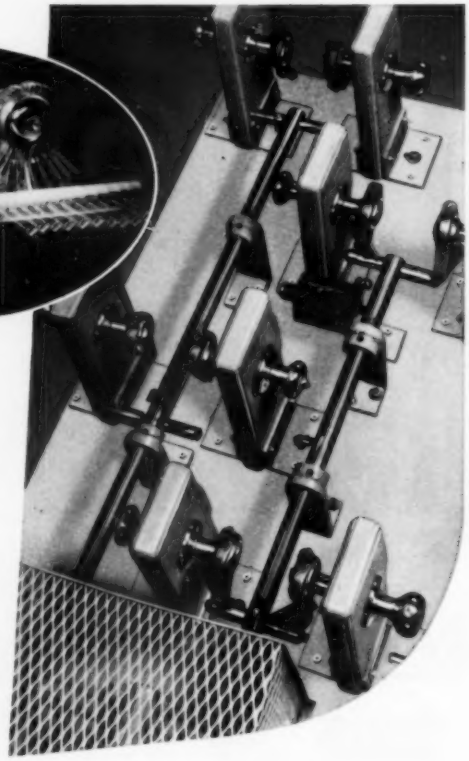

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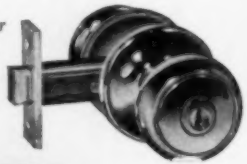

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ELIEL SAARINEN **1873-1950**

Eliel Saarinen died during the night of July 1. The architect who came to this country from Finland in 1922, to exert a greater influence on design in the United States than almost all other men of his time, thus finished in his 77th year a life which had contributed richly in completed and projected architecture, in the design of individual objects, in teaching, and in writing. He leaves his widow, Loja; his son, famed architect Eero, who has been associated with his father in practice in recent years; and his talented daughter, Pipsan (Mrs. J. Robert F. Swanson).

Saarinen first became widely known in the United States as a result of the Chicago Tribune Tower competition in 1922, in which his second-place non-Gothic tower design at once attracted more attention and has had a far greater subsequent influence than the prize winner by Howells & Hood. He had already accomplished great works and won acclaim in Europe. Best known of his Finnish work was probably the Railway Station in Helsinki (now Helsingfors). He had conducted a large and successful practice since winning a student competition for an apartment house in Helsinki. His first important work in this country was the design of buildings for the Cranbrook Academy of Art in Bloomfield Hills, Mich., near Detroit, where he headed the school from its inception. Many other buildings have been completed in the United States—churches, schools, industrial complexes, etc.—first from the hand and pencil of Eliel himself and in later years with the assistance of his son, Eero (and, until the firm recently split, also his daughter and his son-in-law).

This celebrated architect contributed much in the fields of related design. Furniture, tableware, fabrics, and such objects have come in unusual quantity and quality from his office; and the students at Cranbrook have profited from this aspect of his teaching as well as his guidance in architecture. At the other extreme of his design scope, Saarinen was brilliant in the handling of town planning problems. From his 1915 design for an ideal community (Munksnas-Haga) to his plan for Detroit's civic center development, during the last few years, Saarinen has been an original authority in this wider extension of his architecural theories.

His approach to architecture has been well expressed in his published writings—particularly his two most recent books, *The City* and *Search for Form*. He always believed firmly in the need for individual expression rather than copying; he was adherent to no "school" or "style." In town planning, he advocated organic growth and unplotted variations. In architecture his sense of scale and proportion was impeccable; and further than that his feeling for the quality of materials, of finishes and colors, and of the appropriate use of ornament all distinguished his work. Recipient of international recognition and highest professional honors—he moved with the times and in many respects he led the times.

p/a VIEWS

THE FEISS BACCALAUREATE

Dear Editor: May I commend you on the June issue of P/A and especially on Carl Feiss' article—OUT OF SCHOOL. What a masterpiece! Hope all the rest of the profession read his June remarks. You should send this to Henry Saylor for A.I.A. publication, or dare they print it?

Please pass my compliments to Carl Feiss. He may think they're more sincere coming that way.

DON HERSHEY
Architect
Rochester, N. Y.

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TIMELY ADMONITION

Dear Editor: In reading the June issue of PROGRESSIVE ARCHITECTURE, I was very much distressed in going through six pages of illustrations and reading matter about the United Nations Headquarters without a single mention of any of the several engineering firms that were involved in the design, although there is descriptive matter on the engineering features and also some illustrations.

The omission was doubly strange when one read your editorial entitled "On Blowing Your Own Horn." It would seem to be elementary that the principle which you are advocating in the article should apply to the engineering profession as well as the architectural, and even more particularly in a magazine such as yours where so much of the advertising matter is related to engineering materials and where almost uniformly they are meticulous in crediting both the architect and engineer.

JOHN F. HENNESSY
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Engineers
New York, N. Y.

ANOTHER FEATURE

Dear Editor: It has occurred to me that one of the reasons P/A has so large a circulation among architects may be due to reader interest in those two highly editorial features, yours and Feiss's. Why not go out on a limb and have one more such feature, say a single page with a picture occupying most of it, and a signed critical comment. This could appear monthly, and if none of your editors wanted to risk their necks, you might be able to persuade a professor to expose himself.

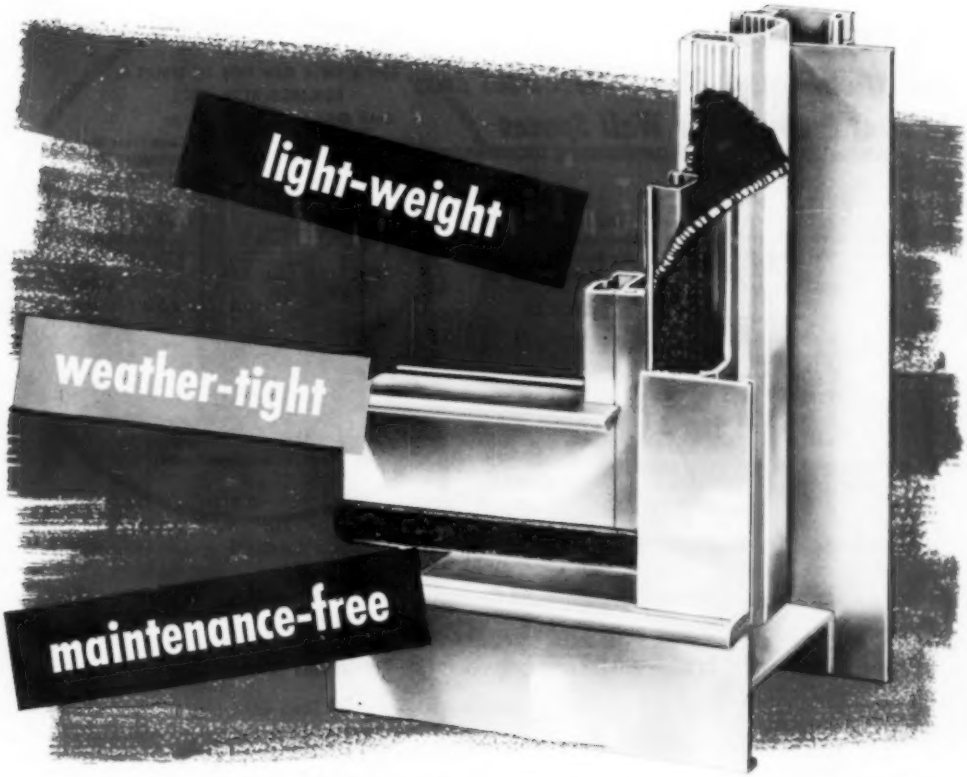
CARROLL L. V. MEEKS
Department of Architecture
Yale University

JANUARY REVIEW

Dear Editor: I always meant to tell you—I am sorry I waited so long before doing so—that I found your special January issue reviewing American architecture of the first half of the 20th Century extremely interesting and stimulating.

Thanks very much for having sent it to me and congratulations to all those who worked at it. I think it is a great job. From an historical point of view, I believe there are some loopholes. For instance, I think that the first use of glass brick, namely at 211 E. 48 Street, might have been mentioned. I am always amazed at the difficulty I have myself in putting dates on things a few years later. I think you did beautifully.

WILLIAM LESCAZE
New York, N. Y.



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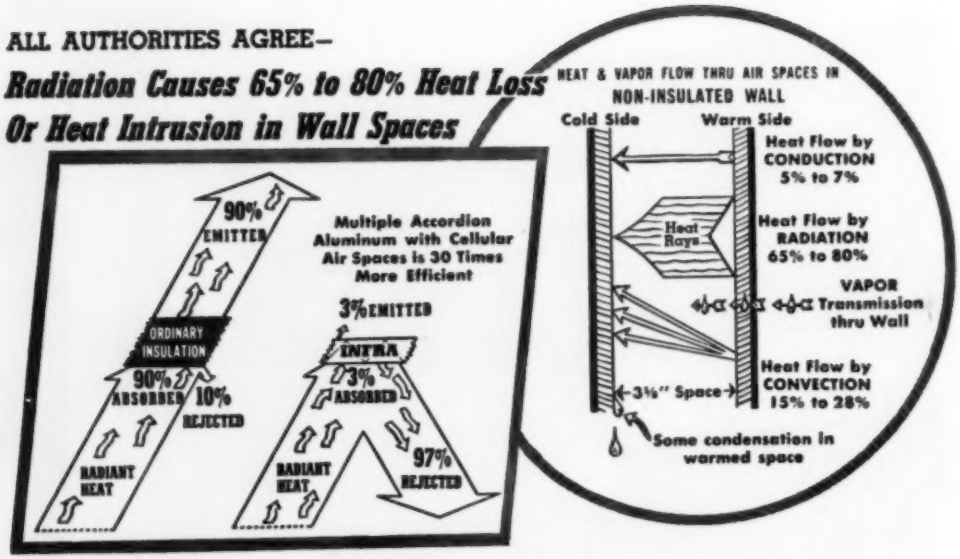

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PROGRESS REPORT

Philadelphia Chapter Medal for "a quality of outstanding attainment in architectural design" went to Louis I. Kahn for his Weiss House (left), also winner of the Home Builders' Association award for "excellence of residential design." *Photo: John Ebstel*

Kimberton Farms School (below) by Vincent G. Kling won the Pittsburgh Plate Glass Company award for "most interesting and unusual combination of glass with other building materials," as well as Honorable Mention from the Chapter. *Photo: Robert Damora*

1950 ARCHITECTURAL EXHIBIT OF THE PHILADELPHIA CHAPTER A.I.A. was effectively displayed during May in the auditorium of John Wanamaker Department Store, Philadelphia. Models, photographs, and renderings of important recent work by active firms in Philadelphia and her satellite residential communities were assembled to demonstrate advances in planning and architectural design. The resulting show, exceptional for its orderly and attractive arrangement, was the success of several committees working under direction of Louis E. McAllister, chapter president.

Outstanding jobs shown by the local firms were given awards, mentions, and commendations by a professional jury. The winners are illustrated here and over-page. It is evident from these examples that skill in contemporary design and professional appreciation of this expression have both developed markedly there in recent years. The exhibit was well attended and comments overheard reflected a well-defined public interest in good design.

•

In addition to the exhibit, the Philadelphia Chapter also produced this spring, after a lapse of 17 years, an impressive yearbook entitled, "Philadelphia, 1950, Challenge to the Changing City." Norman N. Rice edited this publication, assisted by an editorial board of which Alfred Clauss was chairman. In an introductory statement, Rice explains the title of the yearbook by calling on architects of the Philadelphia region

Bird House for Philadelphia Zoo (above) by Bolton, Martin & White won the Producers' Council award for "imaginative and appropriate use of a building material." *Photo: Cortlandt V. D. Hubbard*

The model of a Municipal Building (left) by Penrose K. Spahn, University of Pennsylvania, won the T-Square Club Citation as "most outstanding example of student work." *Photo: Robert H. Rand*

p/a

PROGRESS REPORT

(Continued from page 13)

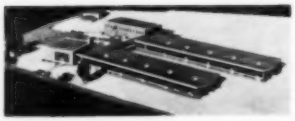
to "participate in the acts and rewards of creation" and to join efforts with leading citizens and civic groups in defeating the obsolescence of the Philadelphia metropolitan area.

"Let us recreate it, starting from the row house and its neighborhood and spreading out to the vast conceptions of a Regional Plan," Rice urges. "Let us not be deterred by what sometimes passes for 'hard facts and reality' which too often is but an expression of a subconscious wish for failure. Assuredly, Philadelphia will live on no matter what we may do. But we, its citizens, possess the creative power to determine in what form it will persist —whether as a mere vegetating agglomeration, or as a self-regenerating metropolis of health, prosperity, nobility, and beauty."

As a stimulus to the local architects and engineers, the yearbook offers first an admirably concise presentation of the well publicized Pittsburgh program of downtown redevelopment, described as "the biggest building story in the U. S. today." The initial success of Pittsburgh in beginning her "City of Tomorrow" is attributed to community co-operation with business enterprise and political enterprise. In a statement for the yearbook, Richard K. Mellon, president of Pittsburgh Regional Planning Association, comments:

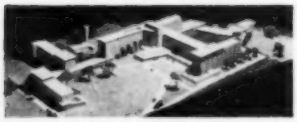
"The key to what Pittsburgh has accomplished has been unity of action in support of a basically sound program of improvements. The major aspects of the program were developed through the co-ordinating efforts of the Allegheny Conference. This organization was created in 1943 with the major objective of bringing order out of civic chaos and of crystallizing a regional program of such scope and significance, that all types of personalities and points of view could be enlisted in support of it. The Conference, while depending, as all organizations do, on the skill of its officers and staff, has made broad progress because it is supported not solely by an influential few, but has become

(Continued on page 16)



Honorable Mention from the Philadelphia Chapter also went to Western Saving Fund Society Building (top) by Harbeson, Hough, Livingston & Larson.
Photo: William M. Rittase

Jury Commendation went to Berninger, Haag & d'Entremont for Lower Southampton Township elementary school (above) and to Vincent G. Kling (winner of Honorable Mention, as noted overpage) for the hospital project shown below.
Photo: Condax
Photo: Robert Damora



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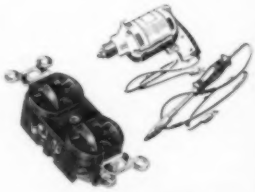
Basics for Basement Living

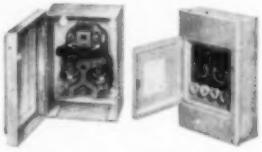


DUPLEX RECEPTACLES

3-wire — 2-wire grounding type duplex convenience outlet for safe grounding of exposed metal parts of portable appliances, etc.

APPLIANCE OUTLETS

Rugged, heavy-duty 2-gang units include switch, 2- or 3-wire grounding type receptacle, and warning light. Excellent appliance receptacles for basement

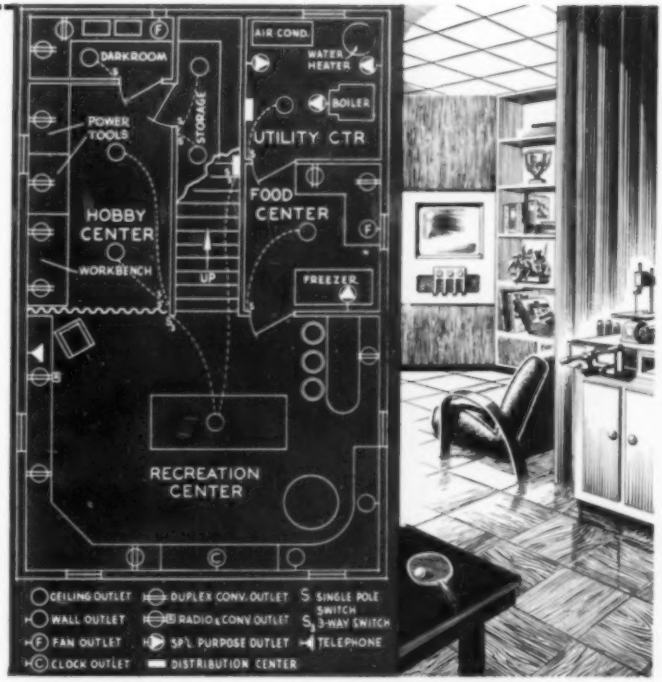


SERVICE EQUIPMENT

Pull-out type or front operated enclosed switches are quality-made, highly dependable units. Positive acting mechanisms protect the home owner. Pull-out types available for main and range with 4, 6 or 8 branch circuits — surface or flush

PORCELAIN RECEPTACLES

Outlet box, porcelain pull receptacles with shadeholder grooves, and with or without convenience outlets, should be part of your basic basement plans. Put them near heating plant, air conditioning unit, work bench, etc.



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PROGRESS REPORT

(Continued from page 14)

identified with the progressive ambitions of the entire community.

"Pittsburgh also has evolved what many of us believe to be an extremely important working relationship between public officials and civic, cultural, and business leaders. While the fields of business enterprise and political enterprise have long been recognized, Pittsburgh recognizes and constructively promotes a third field of enterprise. This third field is community enterprise and rests between the enterprise fields of business and politics. The Allegheny Conference has been the recruiting agency that has secured voluntary participation in this field of community enterprise from all walks of life in the Pittsburgh region. The program that has emerged as a result has the approval of both business and political leaders and is thus protected from selfish interests or political compromise.

"It is interesting to note also that a splendid working relationship has been established by the Pittsburgh organizations that have significant civic roles in the program. The Conference works hand-in-hand with the Pittsburgh Regional Planning Association and the Pennsylvania Economy League. Many aspects of the program are described locally and nationally through the work of the Pittsburgh Chamber of Commerce. There is a clean-cut concept of the field of responsibility for each of these major organizations. Lastly, it should be stressed that all of us in the Pittsburgh region look upon it as an honor to take part in the metropolitan redevelopment program. It makes no difference whether we live within the City of Pittsburgh or in the boroughs and townships and cities that surround it. Participation has been unanimous on the part of those whose assistance has been requested. We recognize that the first steps in solving those economic and social problems, both local and international, that loom before us must be taken in our own community."

●

Statements from Philadelphia planners and leading citizens were obtained to present the several facets of the redevelopment problem facing that metropolis. The postwar activities toward this objective, reflecting the current programs of planners and local authorities, are described in the yearbook by David M. Walker, Executive Director, Philadelphia Redevelopment Authority. He explains:

"As a result of Philadelphia's tremendous contribution to the war effort, our city was left with the greatest housing shortage in its history. With this in mind, City Council was first in the nation to provide a Redevelopment Authority with moneys out of current operating budgets. We thus were able to advance our plans quickly and, as a result, Philadelphia was the first city to receive funds from the Commonwealth; in addition, $6,500,000 has been earmarked for us by the Federal Government.

"The City Planning Commission has certified ten areas for redevelopment—*and all planning in these areas has been directed toward building adequate and suitable housing.* Land is being acquired and agreements executed for construction. In various stages of progress are projects which will aggregate approximately 3000 dwelling units and expenditures totalling $30,000,000.

"The first redevelopment project in Pennsylvania is actually under contract, the American Friends' project in the

(Continued on page 18)

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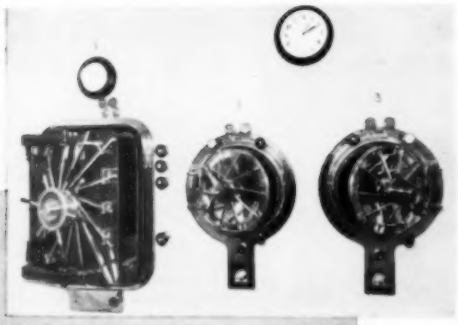


RECESSED INSTALLATION

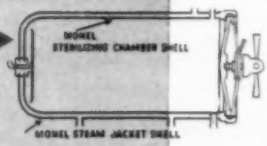
of multi-purpose Castle pressure-type sterilizers in a modern central supply room. Here two cylindrical Monel units are used in combination with a rectangular bulk surgical supply sterilizer having chamber and door liner of Lukens Nickel-Clad Steel. Also employed in Castle blanket and mattress disinfectors, Nickel-Clad provides high corrosion resistance at an economical cost.

IMPORTANT FEATURES

of Castle's No. 1086 Cabinet Model instrument washer-sterilizer are its corrosion-resistant Monel pressure chamber, its sturdy Monel instrument containers and Nickel-Chromium stainless steel finishing jacket.

THIS SKETCH

shows construction details of Monel steam jacket and sterilizer chamber shells in Castle Dressing Sterilizers.



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No wonder leading equipment manufacturers like the WILMOT CASTLE COMPANY, whose equipment is shown here, now offer Monel construction in a wide variety of sterilizers.

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PROGRESS REPORT

(Continued from page 16)

East Poplar area where, out of existing substandard houses, will be created 102 modern apartments; rentals will be no more than the present tenants are paying. On the adjoining block to the south will be another redevelopment project, so that the two will harmonize with and reinforce each other, rehabilitating the neighborhood and supporting the new values. There are two multi-story projects in the Old City area providing about 300 dwelling units, three multi-story buildings near the University of Pennsylvania to house more than 500 families, and two 3-story garden type projects in the Temple area totalling 800 units. Ninety dwelling units are planned for the Southwest Central area; apartments primarily for Negro occupancy will be built in the West Poplar area.

"Although the Triangle (*Civic Center—Ed.*) offers dramatic possibilities equal to those anywhere, and although discussions have been held with financial groups interested in this area, the Philadelphia Redevelopment Authority must take first things first, must meet the most urgent needs—those pertaining to housing."

●

"Our program strikes at the heart of blighted areas and at the same time contributes to solving the housing shortage. The Redevelopment Authority has been commended by many major national organizations for its program that leads to an over-all redevelopment that best serves the needs of our community. Redevelopment programs will differ in each city depending upon community needs; here the need is homes for a large segment of the population unable to pay maximum rentals, and the Authority will press for consummation of a program that best serves the citizens of this city."

This encouraging survey of Philadelphia opinion and activities toward redevelopment is supplemented by a number of pages illustrating the work of architectural firms there. These have been admonished to keep in mind the community needs as well as the immediate programs of their clients.

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WILLIAM M. RICH, Architect-Engineer, 30 N. La Salle St., Chicago, Ill.

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BRENNAN & WHALE, Architects, 30 Bloor St. W., Toronto, Ontario.

ABRAHAM WARONOFF, Architect, Kencord Bldg., Kennedy and Second Sts., N.W., Washington, D. C.

RAYMOND LOEWY ASSOCIATES, 488 Madison Ave., New York, N. Y.

EGGERS AND HIGGINS, Architects, 100 E. 42 St., New York, N. Y.

CHARLES R. BARDOS, Consulting Engineer, 118 E. 28 St., New York, N. Y.

ERNEST F. JONES, Heating Engineer, 750 Glencoe Rd., Glencoe, Ill.

RAOUL A. IBARGUEN, Designer, 1516 Summer St., Philadelphia, Pa.

DEWAR, CAWSTON & STEVENSON, Architects, 618 Northern Hardware Bldg., 104 St. and 102 Ave., Edmonton, Alberta, Canada.

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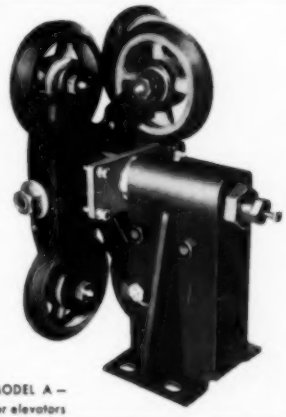
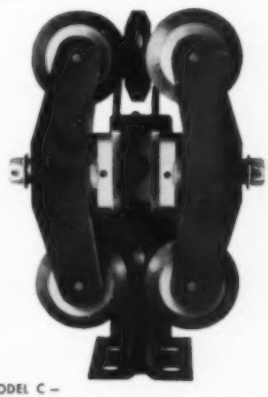


MODEL A –
for elevators



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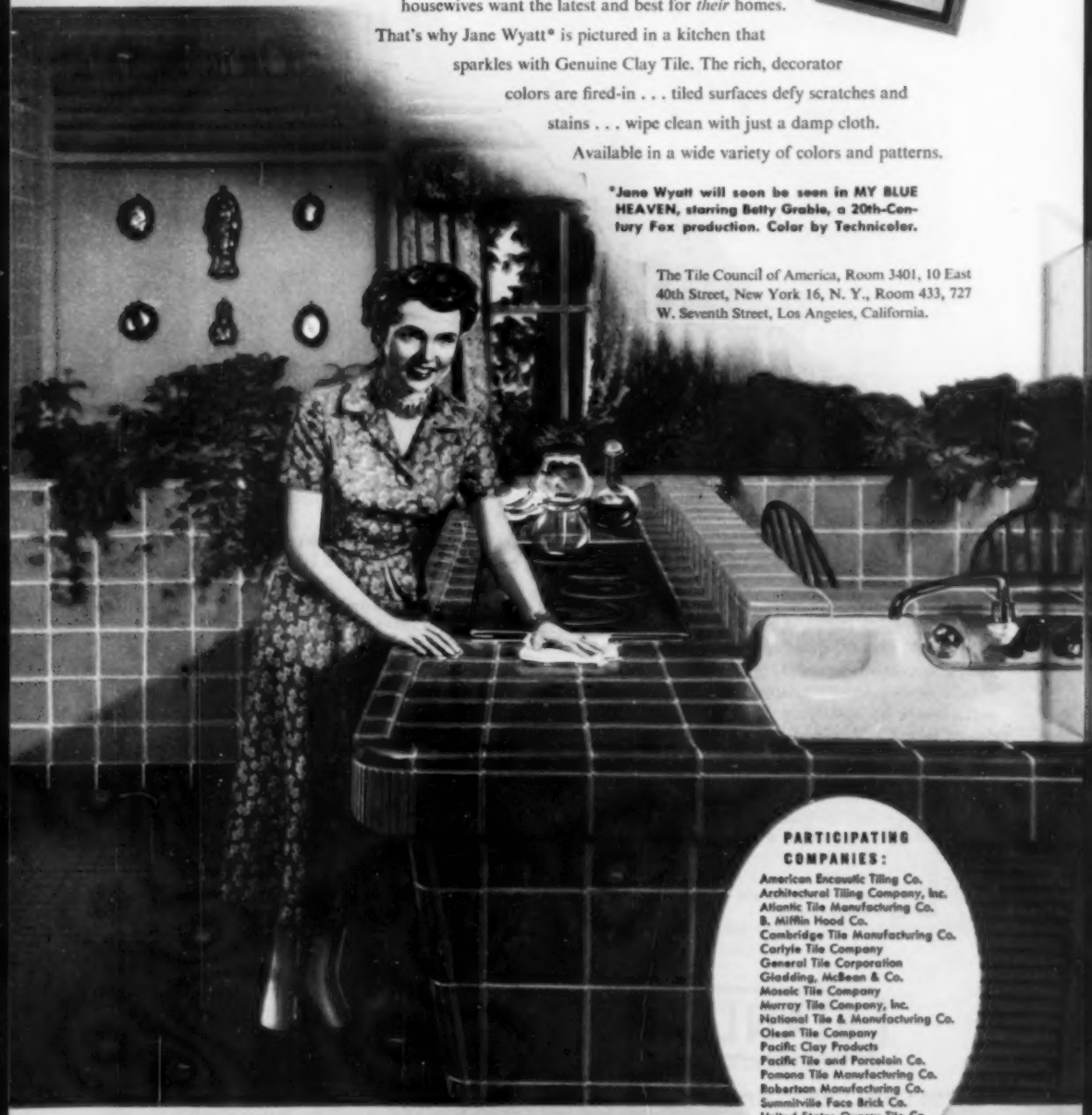

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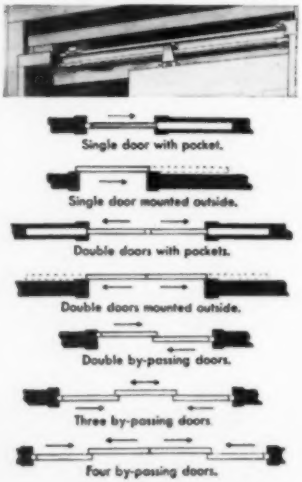

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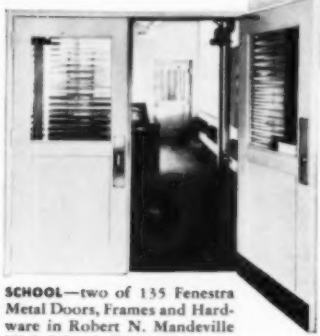

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Architect: Bennett & Straight, Dearborn, Mich.

Contractor: Karl B. Foster, Flint, Mich.

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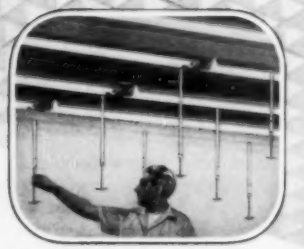

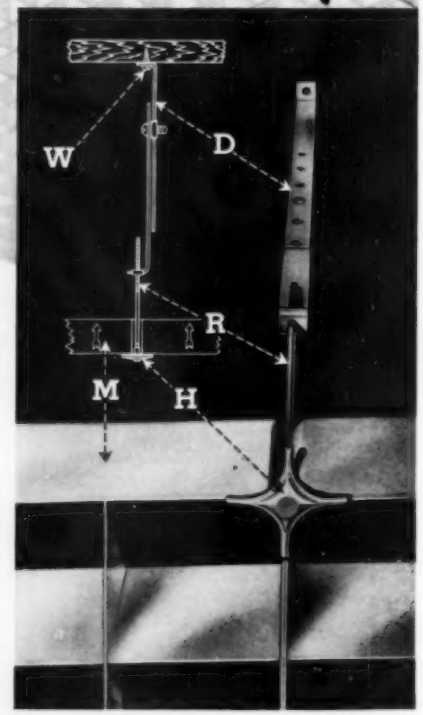

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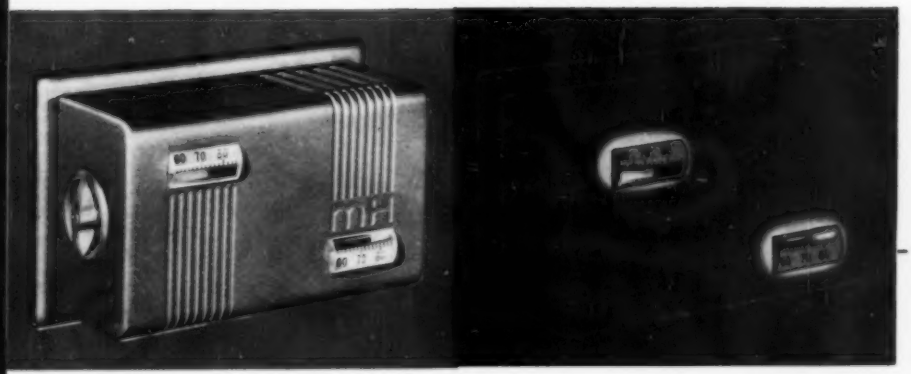
FLUORESCENT LAMPS, FIXTURES, SIGN TUBING, WIRING DEVICES; LIGHT BULBS; RADIO TUBES; TELEVISION PICTURE TUBES; ELECTRONIC PRODUCTS; ELECTRONIC TEST EQUIPMENT; PHOTOLAMPS; TELEVISION SETS

Proudly Announcing

Honeywell's NEW Hospital Thermostat *with* NITE GLOWING DIALS



The *Only* Thermostat especially designed for the modern hospital!...

Here's what your clients in the hospital field have needed—a pneumatic room temperature controller designed to meet their own specific needs. Equipped with exclusive "Nite-Glowing Dial" requiring no electrical connections, this new Honeywell thermostat can be read easily—day or night without turning on lights. Plastic magnifiers make numerals and indicators extra-large for quick, accurate reading and setting. And new control knob is camouflaged against tampering, putting an end to carrying a special key.

Specify this modern hospital thermostat for every room of the hospitals you design. It's equally adaptable for modernization work. Only with a thermostat in each room can you offer your clients all the different temperatures they need. Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Leaside, Toronto 17, Ontario.

Guarding America's Health...

MAGNIFIED INDICATORS
Clear, accurate readings in an instant!... without squinting!

SPEED-SET CONTROL
New camouflaged control knob or conventional adjusting key—optional.

"NITE-GLOWING" DIALS
Read them... make adjustments without light, they glow in the dark.

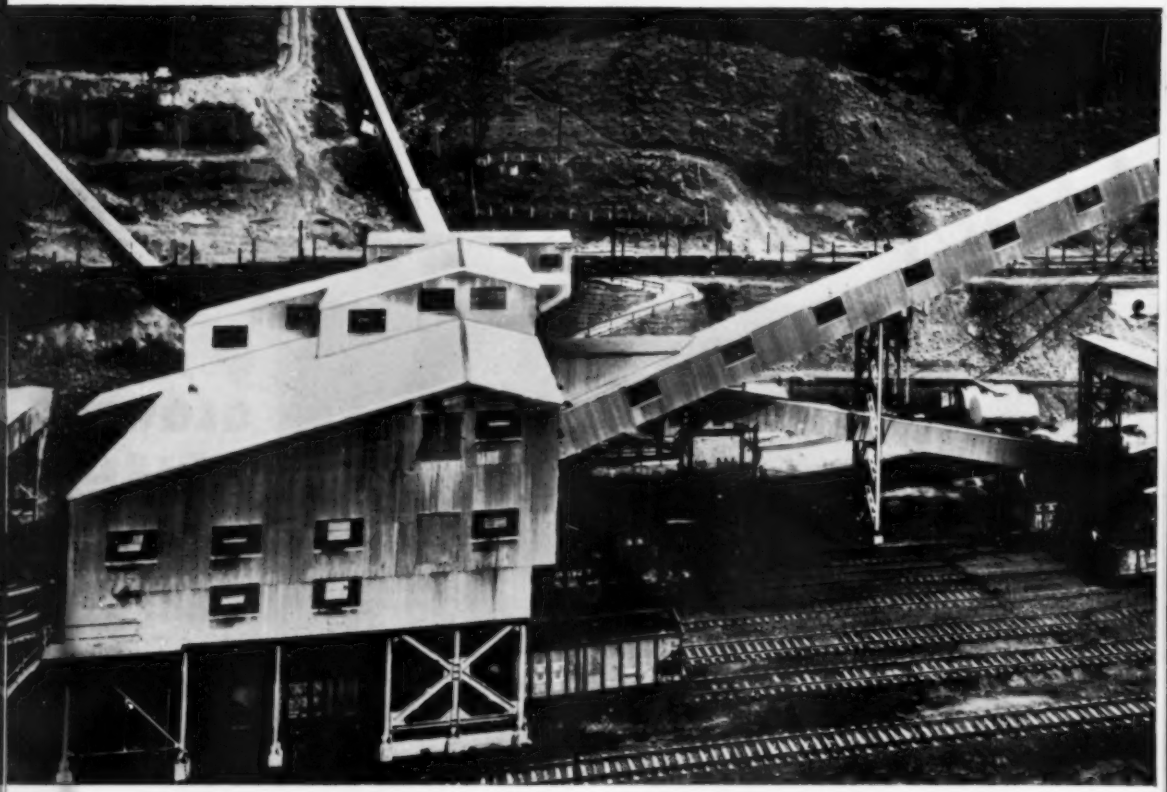
Get this free book! ***"Plan Your Hospital's Atmosphere"***

"Plan Your Hospital's Atmosphere" is the book that tells the full story of automatic temperature control. It describes the special benefits of individual room control and many other modern trends. Simply address a card to Minneapolis-Honeywell, Minneapolis 8, Minn.

DEPENDABLE CONTROLS COST LESS THAN SERVICE

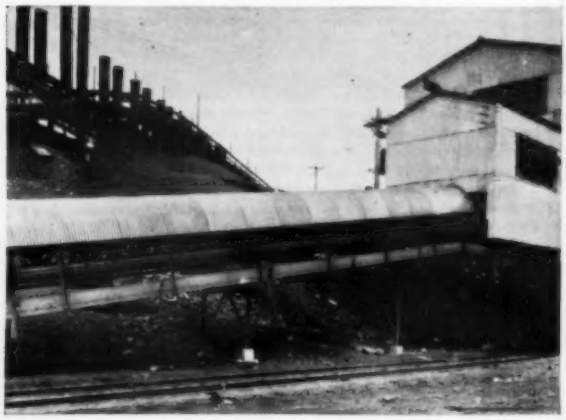
MINNEAPOLIS **Honeywell**
FIRST IN CONTROLS

TIPPLES ARE TOUGH



Over 170,700 sq. feet of Alcoa Aluminum Sheet cover the tipple, conveyor belt housing and other buildings at Stonega Coke and Coal Company's Glenbrook Mine.

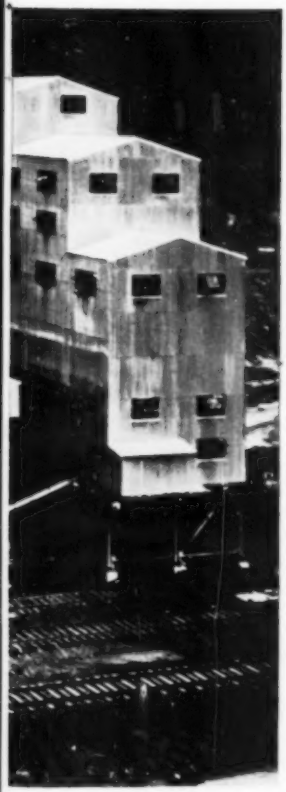
Twenty-four years of coal dust and smoke have not harmed this unpainted Alcoa Industrial Building Sheet covering tipple and conveyors of Philadelphia Reading Coal & Iron Co.



ALCOA

FIRST IN ALUMINUM

PROVING GROUNDS



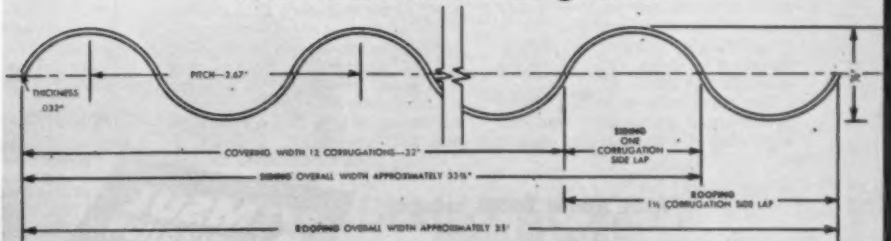
Twenty-four years of corrosive coal dust have not harmed Alcoa Building Sheet

In the damp, corrosive, dust and smoke-laden air of a coal tipple, metal roofing and siding meets one of its severest tests. Under these conditions, for twenty-four years and more, unpainted Alcoa Aluminum Building Sheet has performed perfectly and still is on the job.

No other material so well combines low first cost, ease of erection, freedom from maintenance, long life and good appearance. You can speed construction, eliminate painting costs, be sure of corrosion resistance when you plan industrial buildings using Alcoa Building Sheet.

Conveniently located distributors supply Alcoa Industrial Building Sheet in all standard sizes with accessories and fasteners. For complete details, design and fastening methods, ask your nearby Alcoa sales office for the booklet, "Alcoa Industrial Building Sheet", or write ALUMINUM COMPANY OF AMERICA, 1892H Gulf Building, Pittsburgh 19, Penna.

Alcoa Industrial Building Sheet



Supports 80 p.s.f. uniform load with 4 foot purlin spacing. Weighs only 56 lbs. per hundred square feet. Available in 5 to 12 foot lengths, with all flashing and fastening accessories, from conveniently located distributors. For details and prices, call your Alcoa Sales Office.

Designer solves heat loss problem with new Reflective KIMSUL*

GUSTAVE R. KEANE
27 IRWIN PLACE
HUNTINGTON, L. I., N. Y.

HUNTINGTON 1894-J

Kimberly-Clark Corporation
Neenah, Wisconsin

March 4, 1950

Gentlemen:

The Stamberg home is heated by a radiant ceiling panel. In my opinion this is the most desirable of all heating systems, but it has seldom been used in residential construction. To make this ideal heating system practical for medium-priced homes, a simple and economical way of preventing the heat loss was needed.

Reflective Kimsul was the solution. Two layers were used over the ceiling with dead air space between; the lower blanket with the aluminum foil cover facing down, the upper with foil facing up. As radiant heat leaves the hare pipe, it hits against the foil surface and is reflected back on the plaster from where it is finally radiated down into the room. The ceiling panel consequently radiates heat against the flooring, thereby warming it to almost the same temperature as itself. This was proved when the plaster was found to be drying from the floor up instead of from the ceiling down. And in summer, this simple insulation system reverses itself to keep out the heat which would otherwise penetrate into the house from the roof.

Very truly yours,

Gustave R. Keane

The fine new home of Mr. & Mrs. Melvin Stamberg, in Huntington, New York. Gustave R. Keane, designer.

Each day, as the facts and figures about new Reflective KIMSUL* insulation become better known, more and more architects and builders specify it for residential construction. For in today's highly competitive market, maximum efficiency with *low true cost* is an absolute necessity.

New Reflective KIMSUL provides double-action resistance to heat loss, combining in a single highly efficient unit the advantages of *regular* insulation and *reflective* insulation.

Reflective KIMSUL, too, gives you a vapor barrier that meets FHA requirements—greater strength and permanence in the non-sagging, non-settling stitched blanket—an 80% reduction in storage and handling costs with the smaller, lighter compressed package—new sturdy tacking flanges to cut the time and expense of installation. It resists fire, vermin and mold—provides fuel savings up to 44%—keeps a home as much as 15° cooler on hottest summer days.

For complete information, see Sweet's Architectural and Builders Catalogs, or write to Kimberly-Clark Corporation, Neenah, Wisconsin.

KIMBERLY-CLARK CORPORATION
Neenah, Wisconsin

Now 2 types of KIMSUL insulation
— Regular and Reflective
(Red Roll) (Gray Roll)

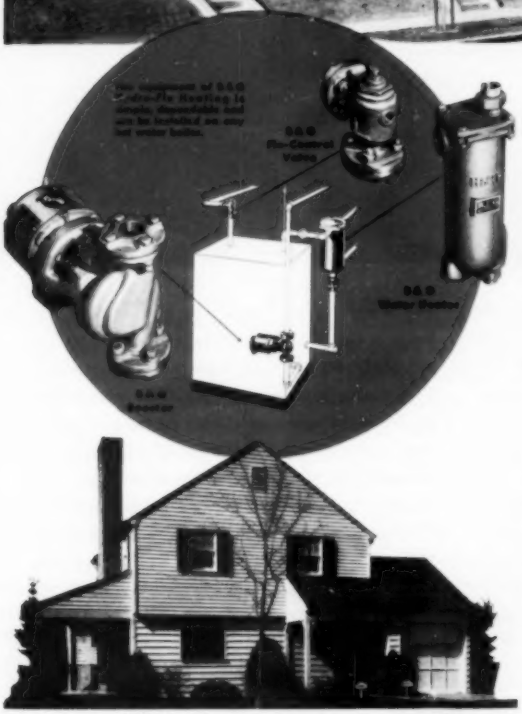
KIMSUL INSULATION
Kimberly Clark

* T. M. REG. U. S. PAT. OFF. & CAN.

NO JOB TOO BIG OR TOO SMALL

FOR B & G *Hydro-Flo* HEATING

Units of a 576-family housing development equipped with B&G Hydro-Flo Heating.



No fuel wasted—no uneven temperatures in this home with B&G Hydro-Flo Heating.

This Forced Hot Water System sets new standards of comfort and economy

Forced hot water has inherent advantages which mean better heating in buildings of every size and description. That's why you find B & G *Hydro-Flo* Systems in small low-cost homes and in buildings where radiation is measured in hundreds of thousands of square feet.

B & G *Hydro-Flo* Heating provides *controlled radiant* warmth . . . assures both economy of fuel and supreme comfort in any weather. For heat distributors you have a choice of radiators, baseboards, convectors or that miracle of modern heating—*completely concealed radiant panels!*

Uniform indoor temperature— no wasteful overheating

The heat supply is always matched to the weather —so exactly that from Fall to Spring indoor temperature is kept constantly at the comfort level. The B & G *Hydro-Flo* System furnishes *just enough* heat . . . never burns fuel needlessly.

B & G *Hydro-Flo* Heating is not for just a few. Everyone can enjoy its benefits because this great advance in living comfort comes within the cost limits of even modest homes.

Send today for free booklet, "Capture the Sun with B & G *Hydro-Flo* Heating."

BELL & GOSSETT *Company*

Dept. BR-37, Morton Grove, Ill.

Canadian Licensee: S. A. Armstrong, Ltd. 1400 O'Connor Drive, Toronto 13

*Reg. U. S. Pat. Off.

BUILDER CUTS COSTS $263 with *Thermopane* WINDOW WALL

Construction time saved. Vertical 2 x 6's double as structural members and as side frames for the *Thermopane*. Horizontal 2 x 6's serve as top and bottom frame members, the fixed *Thermopane* being stopped into place. Ventilating sections are simple, top-hinged sash also glazed with *Thermopane*.

A house with extra sales appeal . . . built faster . . . for less money. That's what builder N. P. Ninneman of Harrisburg, Pa., reports on his unique method of framing *Thermopane*® insulating glass in window walls.

Mr. Ninneman figures his *Thermopane* window wall not only costs less than conventional wall construction, but also saves 20 or more days in construction time.

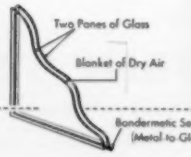
These benefits are made possible by using structural members of the house as frames to hold standard size *Thermopane* units. This window wall construction goes up so quickly that the house is completely closed in and glazed by the end of the fifth day, so inside work can proceed.

By using window walls, Mr. Ninneman is able to provide a spacious-looking home on a small floor plan. By glazing them with *Thermopane*, Mr. Ninneman assures buyers of comfort they wouldn't have with single-glazed window walls.

Case after case is being reported of builders who are adding the sales appeal of *Thermopane* window walls at little or no extra cost. Have you recently measured its possibilities for your houses?

*®

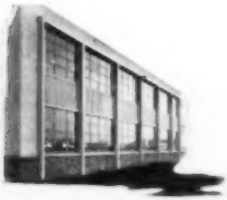
FOR BETTER VISION SPECIFY THERMOPANE
MADE WITH POLISHED PLATE GLASS



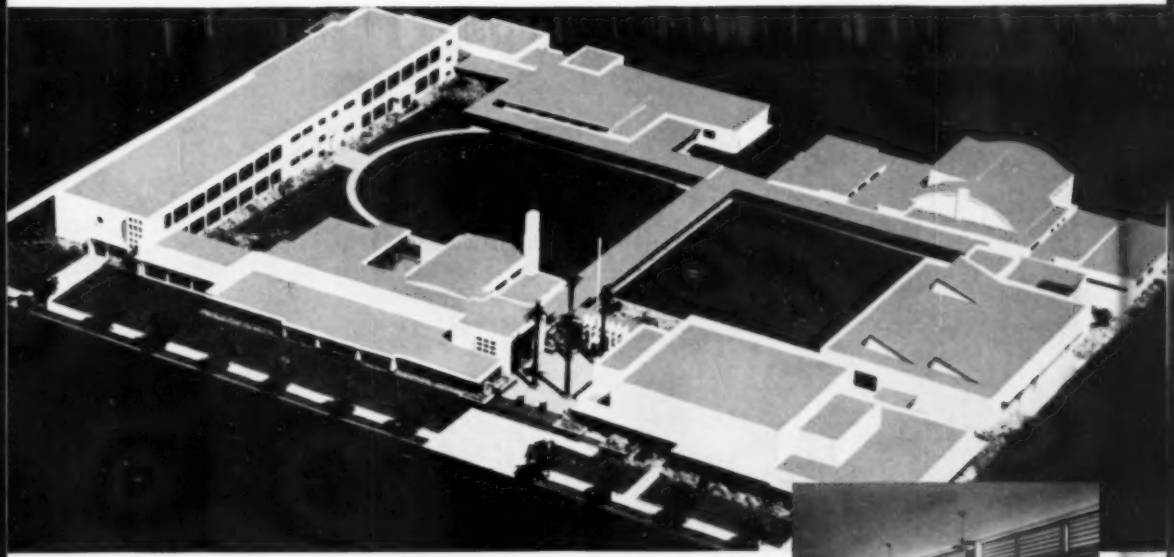
L·O·F GLASS

Thermopane

MADE ONLY BY LIBBEY·OWENS·FORD GLASS COMPANY
4785 Nicholas Building, Toledo 3, Ohio



How a School with *14 Sides* Utilizes *free* Natural Daylight



There's a popular old song that tells us "The Best Things in Life Are Free". When it comes to illuminating schoolrooms, that certainly is true because there's no better light than daylight and it's FREE. Architects Austin, Field & Fry took full advantage of natural daylight in designing the Sun Valley Junior High School. First, they designed a building with two hollow squares making daylight available on 14 sides. Then they specified Ceco Steel Windows. In that way, they assured more natural daylight because steel windows admit more light than any other type of window opening. And, finally on the sides where brightest sunlight prevailed, fixed horizontal overhangs and stationary louvers were provided as controls. The result —a properly daylight-illuminated school. To be doubly sure of a better structure and economy in building, concrete joist construction was specified, using Ceco Removable Steelforms and Ceco Reinforcing Bars.

Stationary steel louvers were employed to control light, deflecting it to the ceiling.

Outside view showing stationary steel louvers which eliminate high brightness areas in rooms.

CECO STEEL PRODUCTS CORPORATION

General Offices: 5601 West 26th Street, Chicago 50, Illinois

Offices, warehouses and fabricating plants in principal cities

CECO STEEL

In construction products **CECO ENGINEERING** *makes the big difference*

CARSON AND LUNDIN, Architects, design premium space in **NEW YORK** with . . .

600 FIFTH AVENUE RADIO CITY
MASSACHUSETTS MUTUAL LIFE INSURANCE
NEW YORK, N. Y. OWNER

CARSON AND LUNDIN, ARCHITECTS

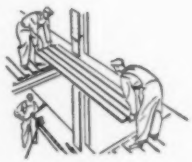
TURNER CONSTRUCTION COMPANY
BUILDER

ROBERTSON Q-FLOORS

AT NO EXTRA COST

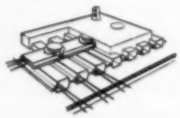
Of all the modern building features you can incorporate to entice tenants, only Q-Floors do not increase the over-all cost of your building.

Taking all factors into account, Q-Floors save materials, save erection time, save subcontractors storage expense, reduce fire and accident risk during construction.



The electrical feature of Q-Floors permits you to locate electrical outlets and partitions with complete freedom. Outlets can even be located after tenant moves in at negligible cost. This has strong rental appeal.

The total saving in time permits owners to occupy the building 15 to 20% sooner. This reduces financing costs and brings earlier revenue.



Q-Floors protect the earning ability of a building because they spare tenants the high initial cost of electrical alterations and the cost of changes over the years. The owner is assured that his building will remain electrically adequate, no matter how great the increase in demand for electricity during the next decades.

Have you the latest Q-Floor Literature?

H. H. ROBERTSON CO.

2405 Farmers Bank Building
Pittsburgh 22, Pennsylvania

Offices in 50 Principal Cities
World-Wide Building Services

TRANE *Presents...*

Trane
Gas Unit Heater
with
Louver Fin Diffuser.

Trane
Gas Unit Heaters
are built of steel
heavier than
AGA standard.

A new GAS UNIT HEATER BUILT LIKE A BOILER

It's new! It's attractive and functional! It's built like a boiler! That's the Trane Gas Fired Unit Heater.

Heart of the unit is the exclusive Torrid Tube Heat Exchanger. Its steel tubes, generously sized for easy air passage, are rolled into heavy end sheets, boiler tube style — *fortified with additional outer and inner rolled flanges.* Completely leakproof. Built for continuous, heavy duty service.

Note, in illustration below, the new, improved *one-piece* burner assembly. Cast iron burners, together with mixing tubes, pilot light and valves are mounted so that they can be withdrawn *as a unit* for quick, easy maintenance.

The Trane office in your area is ready to supply you with complete details on the long-life design of this ruggedly attractive Trane high capacity gas unit heater.

THESE GREAT FEATURES

1. Sturdily attractive unit fits every where.
2. Husky heat exchanger "built like a boiler".
3. Masked secondary air openings improve appearance.
4. One-piece cast iron burners and mixing tubes—permanently correct.
5. Unitary design of burners, pilot, valves speeds maintenance.

Trane Gas Unit Heaters carry both AGA and UL approval.

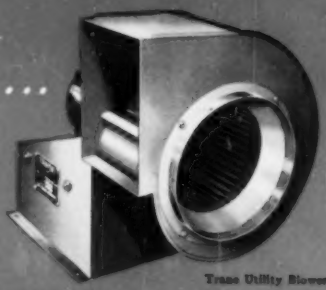
NEW COMPLETE CATALOG

Just in from the printers — 12-page bulletin contains details on construction advantages, capacities, and other pertinent data on all seven gas unit heater sizes. Ask the Trane Sales office in your area for your copy now.

TURN THE PAGE!

New Fans, New Projection Heaters, New Diffusers are announced.

TRANE *Presents...*



Trane Utility Blower.

Trane Type BI Fan.

Trane Type FC Fan.

A new COMPLETE FAN LINE

NEW WIDE RANGE OF SIZES — NEW CONSTRUCTION FEATURES — CERTIFIED RATINGS

MATCH THESE FEATURES

1. Low Horsepower--designed for greatest over-all efficiency.
2. Low Noise Level--quiet operation in all sizes.
3. Maximum Outlet Openings--outlet velocities kept at a minimum.
4. Quality Construction--heavy gage steel, husky bearings and heavier shafts.
5. Durable Finish--every fan protected by rubberbase enamel.
6. Rigid Bracing--angle-iron frame and steel apron provide dual strength.

Now — a new Trane Fan Line. The manufacturing engineers who introduced the convector — perfected the projection heater — developed new methods of multi-room air conditioning, present an entirely new and more complete line of centrifugal fans. Trane, drawing on its quarter-of-a-century in building fans separately and for hundreds of thousands of heating and cooling units, has created

1. A new Trane Type BI Fan with *Backwardly Inclined Blades.*
2. A new Trane Type FC Fan with *Forward Curved Blades.*

TURN THE PAGE!

This is the second of four great new Trane Products

Class I and II Fans

The new Trane Fans are available in Class I and II construction. They can now be used in every heating and air conditioning installation as well as most industrial applications.

Certified Ratings

Trane Fans have Certified Ratings. *Each Trane Fan is rated in accordance with the Standard Test Code for Centrifugal Fans* approved jointly by NAFM and the ASH&VE, and close manufacturing tolerances are rigidly maintained.

Complete Line

The line is complete: Type BI Fans are available in 23 sizes. Type FC in 21 sizes. Wheel diameters range from 12" to 108". All arrangements. All direction of rotations.

Complete Accessories

To make the Trane Fan Line even more comprehensive, a complete array of special features and accessories have been made available. Included are such items as discharge dampers, inlet vanes, inlet screens, high temperature modifications, sparkproof fans, fans of special metals or with corrosion resistant coatings, gas tight housings with shaft seal and many more.

Multi-Feature Fans

Feature upon feature has been crammed into the new Trane Fan Line. Trane Fans are finished in clorinated rubber base enamel for corrosion resistance — an exclusive feature. Other features include low horsepower, low noise level, and minimum outlet velocity. Literature is the most complete in the industry. Contact your nearest Trane Sales Office for complete information on the new Trane Fan Line and learn why Trane Fans are superior to any other fan line.

New Duct Calculator

To make fan application even easier Trane engineers have perfected an entirely new duct calculator. Direct readings, from *one* setting. This new calculator is available through The Trane Educational Division at a non-profit price of $1.00 each.

NEW LITERATURE THAT TELLS EFFICIENCY AT A GLANCE

Trane Fan Line literature is ready. Featured for the first time is an entirely new idea in fan data. Rating tables tell fan efficiency at a glance. Each rating table is divided into easy to see efficiency zones. Now you can know without calculation, how efficient the fan you select really is, and there is a constant reminder to select fans in the best zone of operation.

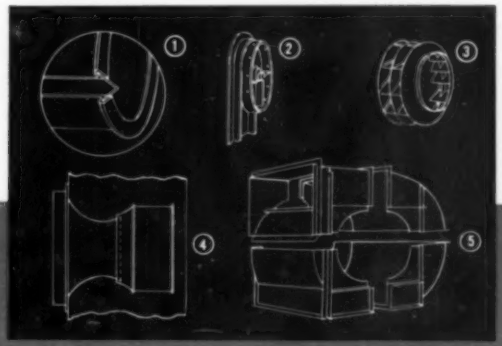
Type BI Fan Catalog ▶
DS-348B
First of three new Trane Catalogs — 88 pages — complete in every detail — write for a free copy now.

◀
Type FC Fan Catalog
DS-348F
80 Pages of ready-to-use information on the FC Fan.

Utility Blower Catalog ▶
DS-348U
Separate data on utility blowers contained in this compact booklet.

CONSTRUCTION FEATURES

1. Lock seam construction on all smaller units prevents air leakage. Larger sizes have all-welded construction for air tightness and greater strength.
2. Uninterrupted inlet collar on all fan sizes simplifies duct connection.
3. Stiffening rings provide extra rigidity to the wheel where size of fan and kind of duty require it.
4. Streamlined inlets scientifically designed to increase fan efficiency and produce exceptionally quiet operation.
5. Split housings make it possible to disassemble larger fan housings in horizontal and vertical sections.



THE TRANE COMPANY LA CROSSE, WISCONSIN

MANUFACTURING ENGINEERS OF HEATING AND AIR CONDITIONING EQUIPMENT • OFFICES IN 80 CITIES

TRANE *Presents....*

The Trane Projection Heater with Louver Cone Diffuser.

Above: Projection Heater without diffuser.
Below: Louver Cone Diffuser.

A new ATTRACTIVE PROJECTION HEATER PLUS A NEW DIFFUSER THAT IS COMPLETELY ADJUSTABLE

Now the Projection Unit Heater — the unit originally introduced by Trane — has been succeeded by a completely new model. The new 1950 Projection Heater has even more features than its history-making predecessor.

Big feature is a new attractiveness that makes the unit ideal for commercial as well as industrial application. The bottom plate has been given new, graceful yet strength-producing lines. The top has been streamlined for neater appearance, greater strength and simpler suspension.

Among its many other new features are — 1. Coil expanded hydraulically at pressures exceeding 3000 pounds guarantees against coil leakage. 2. New coil for more heat per pound of metal. 3. Motor removable from the bottom in larger sizes for easier maintenance.

New Adjustable Diffuser

To make the Projection Heater even more versatile and to solve on-the-job diffusion problems easily, Trane engineers have developed a remarkable new diffuser — the Louver Cone. It's attractive and positive in its action. But more important — it's completely adjustable. Now, a projection heater can be installed and then adjusted to meet exactly every requirement. Once installed the heater can be adjusted easily to meet any changes in the building arrangement.

When blades of cone are wide open, increased velocity increases distance of vertical discharge as much as 60%. With cone blades closed, warmed air is spread over an extremely wide area. Any point between these extremes easily results from simple adjustment of the blades.

Close the blades completely and the diffuser forms a cone for low ceiling mounting.

Only a touch of the fingers is required to adjust the individual blades.

By varying the pitch of the louvers the air can be directed to any angle — some of it straight down, the balance in a wide half-circle.

THE TRANE COMPANY . . . LA CROSSE, WIS.
EASTERN MANUFACTURING DIVISION, SCRANTON, PA.
Manufacturing Engineers of Heating, Ventilating and Air Conditioning Equipment—Unit Heaters, Convector-radiators, Heating and Cooling Coils, Fans, Compressors, Air Conditioners, Unit Ventilators, Special Heat Exchange Equipment, Steam and Hot Water Heating Specialties.
IN CANADA, TRANE COMPANY OF CANADA, LTD., TORONTO

FOUR NEW PRODUCTS

ABOVE ARE ANNOUNCEMENTS OF TWO OF FOUR GREAT NEW TRANE PRODUCTS. INFORMATION ABOUT NEW TRANE FANS AND NEW TRANE GAS UNIT HEATERS APPEARS ON PRECEDING PAGES.

MANUFACTURING ENGINEERS OF HEATING AND AIR CONDITIONING EQUIPMENT • OFFICES IN 80 CITIES

1949-181-750 PRINTED IN U.S.A. BY J.&K.

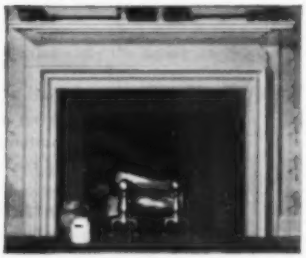
selectivity

FOR ANY PLAN
ANY STYLE
ANY SPACE

Ranch house—Cape Cod—Colonial—whatever the architectural style—whatever the size or cost of the house—Curtis has woodwork to fit your need. For the Curtis woodwork line is so wide—so varied—that it gives you practically unlimited scope in planning and building homes for every taste, need and pocketbook.

When you select Curtis entrances, mantels, china cases, stairways or kitchen cabinets, you can be sure of some very definite qualities. The materials will be carefully selected for every need. Craftsmanship will be fine because of Curtis precision manufacture—held to the highest standards for 84 years. Architectural styles will be correct. Costs will be moderate.

You'll find it worth while to have complete information on Curtis stock architectural woodwork—just mail the coupon.



For books, prized china and *objets d'art*, Curtis china cabinets provide ideal storage. Here is one of eighteen Curtis styles in a wide price range.

Where the owner wants an entrance above the ordinary, this Curtis design will solve the problem and reflect good taste. Design C-1709—one of many outstanding styles.

A Curtis mantel makes the utility of a fireplace beautiful. Curtis mantels "wear well"—they were designed by leading architects—have fine proportions and detail.

A new Curtis Development —PRESPINE

Prespine—the new wood material for use in panels in Curtis doors and other woodwork—now duplicates the *natural grain of wood!* Prespine panels, made of finely divided wood, will not warp, check or splinter—won't shrink or swell. Prespine is fadeproof . . . can be quickly and economically finished by skilled or semi-skilled labor.

1866 CURTIS WOODWORK

Curtis makes a complete line of woodwork for the modern home. Make your next house "all Curtis."

Curtis Companies Service Bureau
PA-8W Curtis Building, Clinton, Iowa

Gentlemen: Please send me your book on Curtis Stock Architectural Woodwork.

Name.....

Address.....

City.....State.....

I am ( ) Architect ( ) Contractor ( ) Prospective Home Builder ( ) Student. Please Check.

TESTS PROVE.. POWERS

THERMOSTATIC SHOWER MIXERS
Give SAFEST Control Obtainable

ONLY ONE MOVING PART — Powerful thermostatic motor assembly is easily accessible from the front. Simple and durable construction insures long life and minimum of maintenance.

STANDARD TESTS

Federal Government Specifications (WW-P-541a) require that thermostatic water mixing valves be tested under conditions specified below:

Pressure Changes in Hot and Cold Water Supplies
50% Increase in pressure
50% Decrease in pressure
Failure of Cold or Hot Water Supply

Temperature Rise in Hot Water Supply
100° rise in temperature of hot water supply from 125 to 225°F

If You Test Various Water Mixing Valves by the above conditions . . . you will find that POWERS Type H THERMOSTATIC WATER MIXERS Will Out-perform All Other Mixers

Note that Government test specifications include TEMPERATURE rise. Pressure actuated mixers do not safeguard shower users against this danger.

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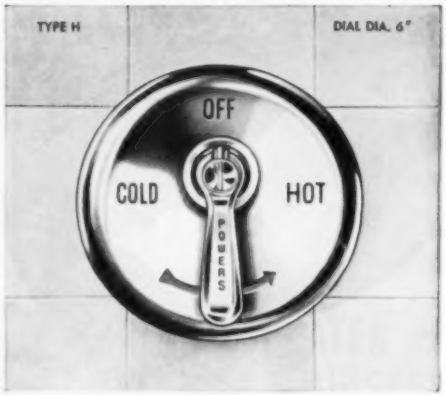

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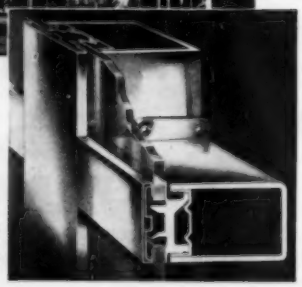

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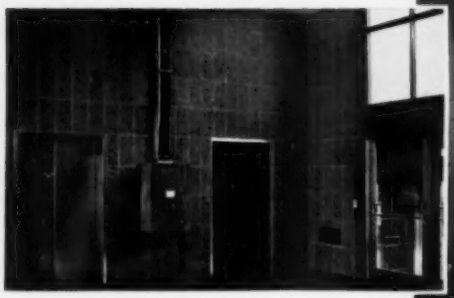

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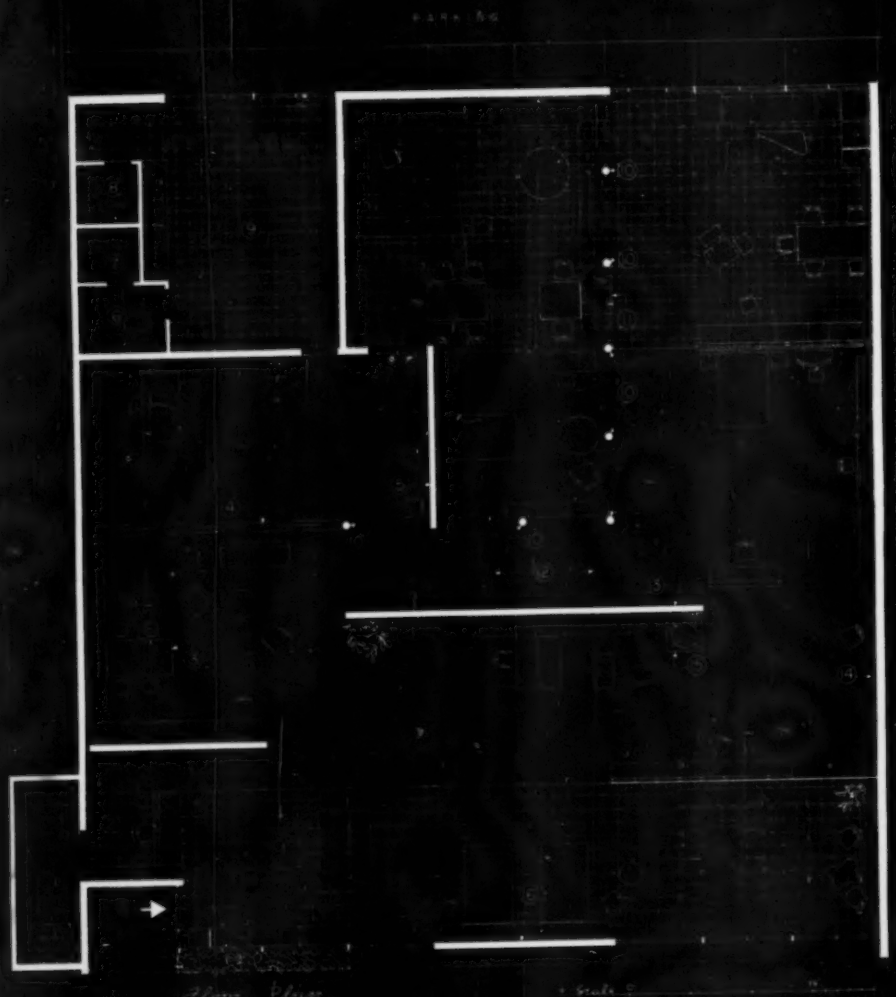


1. Office
2. Reception
3. Planning table
4. Fabric display
5. Starfish
6. Powder room
7. Women
8. Men
9. Storage
10. Freestanding poles
11. Architecturally projected sash
12. Carpeted area
13. Tree mural
14. Photo mural
15. Stove
16. Sun and moon
17. Bench for bus stop

Above: the street front, made up of a steel frame grillage which, by introduction of different types of glazing or opaque panels, may be made as open or shut as desired.

Right: an interior space, set apart by partial partitions supported on pipe standards that are attached to floor and ceiling inserts. This particular area is terminated by a 12′ x 14′ panel supporting a huge photomural.

Photos: Jay Connor

program A new building to be leased to the Herman Miller Furniture Company for its Los Angeles showroom.

site Interior block site, 64 feet wide, in Los Angeles' fast-growing center for home-furnishings manufacturers and distributors.

solution A simple, rectangular room, with the sidewalk front (facing north) made up of a grillage of steel frame members, with the openings variously filled with clear glass, translucent lights, factory-projected sash, or opaque panels of plaster or composition. Thus, depending on which fillers are used, the front may be as open or shut as desired. End walls are of brick. From the start, the designer determined to employ a "minimum of architecture," feeling that the building was important only to the extent that it assisted the main business at hand—a sympathetic relation of the displayed furniture to its surroundings, and of the clients to the furniture. Within, this same reticence and flexibility have been provided. In a modular grid, 7′ o.c., in both floor and ceiling are threaded inserts to receive pipe-standard supports to which, in turn, a variety of partition panels may be attached. The system does not attempt to simulate rooms but by the placement of semi-partitions to echo space situations that occur wherever furniture is used. The open front (which can be wholly open or largely screened), plus the movable partitioning system, offers many possible solutions to display problems and the building lends itself to complete rearrangement, depending on the seasonal need or the particular furniture to be shown. Natural daylighting from the (north) front wall is supplemented by three six-foot-diameter circular skylights. Artificial lighting, like the partitioning, is flexible, with adjustable-arm fixtures hung from a ceiling grid.

materials and methods CONSTRUCTION: *Foundation:* concrete. *Frame:* steel and masonry. *Walls:* structural brick, the natural brick exposed on the exterior and portions of the interior; other interior areas plaster finished. *Floors:* asphalt tile or carpeting over concrete slab. *Roof:* built-up roofing over 2″ x 6″ solid woodsheathing that rests on steel trusses, 7′ o.c., that span the 64-foot building width. *Fenestration:* architectural projected sash; clear, translucent, and patterned glass.

EQUIPMENT: *Heating:* gas-fired, forced-air system; ceiling outlets. *Electrical:* both incandescent and fluorescent units; service outlets 14′ o.c. over entire ceiling area, supporting paired pendant fixtures.

the designer *Charles Eames:* the well-known designer of furniture in the Miller collection received his training at Washington University, St. Louis, and at the Cranbrook Academy of Art, where he was a member of the faculty and worked in the late Eliel Saarinen's office. Busy in private practice.

Left: in this area a fabric display, hung from a rod supported on pipe standards, forms the partial partition behind the sofa at left.

Below: at night the different textures of the front wall panels produce an arresting abstract pattern.

Below, left: here a freestanding, serpentine screen and an open wood frame (hung on pipe supports) constitute the space dividers.

four houses

Unlike some of P/A's previous round-robin critiques, this one, built around four houses, is in no sense comparative. One of the houses was built for a private owner with a generous budget; at the other end of the scale is an attempt at a speculatively built house within a $10,000 budget; and the other two fall within fixed budgetary limits between these two extremes. In this analysis we asked the co-critics (each man criticizing the work of the others) to judge each job strictly on its own merits. "This is not a competition," we emphasized.

As usual, though, we asked the architects to be as specific and constructive in their criticism as possible. We then forwarded the criticisms to the architect who did the job so that he could comment, explain, or temporize. From the combined statements, we prepared this critique.

Incidentally, any suggestions about the method we're using for these round-robin critiques? We think they come out pretty well and are interesting to read, but we're prejudiced. The participants seem to like them—increasingly—as they proceed. When we first invite them to participate, replies are usually cautious—"we're willing," one said, "but it frightens us somewhat. Still, we've been frightened before." But, by the time they've worked through, the customary reaction is "it was a pleasure to participate," or "we have greatly enjoyed getting frank expressions from some of our contemporaries."

But how do they read to *you?* Do you like them? Want more of them? Any thoughts on how we might improve them?

THE EDITORS

DESIGNER-CRITICS (left to right, above): Drake; Granger & Fehr; Stubbins. At bottom of page: Twitchell & Rudolph.

Gordon Drake: Schooling in California and Hawaii; study with Carl Troedsson; work with Harwell Hamilton Harris. During war, with U. S. Marine Corps. Year and a half in Carmel, during which the house shown here (among others) was built. Architectural Consultant, Sunset magazine. Opened own office, San Francisco, 1950.

Charles Granger: B. S. Arch., U. of Texas. Associated with Richard Neutra; partnership with Fehr, 1938. During war, work on AE contracts and with Consolidated-Vultee Aircraft; Graduate fellowship, Arch. and Urban Planning, Cranbrook; work with Saarinen & Swanson. M.A. in Arch. and Urban Design, Cranbrook. Reopened Austin office, 1945.

Arthur Fehr: B. S. Arch., U. of Texas; graduate work, Columbia, N.Y.U., and Beaux Arts Institute of Design; work with offices in New York, San Antonio, and National Park Service. Own office, Austin, 1937; joined Granger in 1938. War work, AE contracts; engineer with War Dept. Office reopened, 1945.

Hugh Stubbins, Jr.: B. S. Arch., Georgia School of Technology. M. Arch., Harvard Graduate School of Arch. Work, both independently and with offices in Boston and Birmingham, Ala. Mechanical design for Radio Research Laboratory; Associate Professor of Architecture, Harvard; member, Arch. Advisory Commtittee, Public Housing Administration.

Ralph S. Twitchell: Rollins College; McGill U. and Columbia U. With Air Force, World War I, until shot down. Work with Carrere & Hastings and Raymond Hood, New York; independent practice—Florida in winter, New England in summer. Since 1946, in Sarasota, in association (now partner) with:

Paul Rudolph: B. Arch., Alabama Polytechnic Inst.; work in various offices; M. A. Arch., Harvard Graduate School of Design; service with U. S. Naval Reserve during war.

1. Carmel, California

GORDON DRAKE, DESIGNER

program An attempt to provide as much living area (both inside and outdoors) as possible in a development house on an inside suburban lot, within a $10,000 budget. A flexible construction system that could be used by local building contractors with locally available materials and labor.

site Inside, subdivision lot, 60 feet along its southern frontage, 100 feet deep, on flat, reclaimed tide land. Assumption: that the house would eventually be surrounded by an unplanned suburb, with neighboring houses perhaps 6 feet from lot lines at either side. To the north, hills rise gradually, with all houses on the slope oriented south.

solution Three basic units—a large living and dining room; a two-bedroom-bath unit and utility core; and a kitchen-service-garage-storage unit—that could be adjusted to each other in a variety of relationships depending on individual site requirements. Size of any of the units can be lengthened or shortened, provided one stays on the 3-foot module; span, to be adjusted by changing depth of ceiling beams. To maintain both privacy and eastern and southern views, low fences are introduced to screen immediately adjacent properties; fenestration is worked out to capitalize on the path of the winter sun. Privacy for outdoor living is obtained by a series of fenced courts or gardens, the fences placed at a required 6-foot setback from side lot lines. In each case, these occur outside the glazed wall areas; hence, the house becomes a series of enclosed gardens and rooms.

Structurally, the system is based on the average carpenter's knowledge and use of stock pieces of lumber that can be easily handled. Walls are worked out on a 16″ vertical module to take stock doors, windows, and screens; framing consists of post and beam bents, 6′ o.c. The roof, of tongue

and groove planking, is exposed as the ceiling and acts as a diaphragm to tie the bents into the bracing wall.

To keep landscaping within a modest budget and easy to maintain, Douglas Baylis, the landscape architect, took advantage of the garden fences and hung on them plant boxes for the display of bright annuals. Pots and small planting beds supplement these, and the brick paving "promotes all seasons' use and minimizes upkeep."

materials and methods

CONSTRUCTION: *Foundation:* reinforced concrete slab. *Frame:* built-up posts (2-2 x 4's with 1 x 4 spacer) 6′ o.c. *Walls:* 1 x 6 redwood siding. *Floors:* asphalt tile over slab. *Roof:* 2 x 6 T & G fir planks over 2-2 x 8 ceiling beams, 6′ o.c.; 5-ply tar and gravel roofing. *Partitions:* 2 x 4's, 18″ o.c., for wood; 2 x 4's, 16″ o.c., for plaster. *Fenestration:* wood casement; 3/16″ crystal plate glass.

EQUIPMENT: *Heating:* gas-fired, forced warm air system; unit heater in bathroom. *Water heater:* gas-fired; 40 gallon.

critique

This extraordinary "builder's house" provoked a great deal of discussion among the co-critics. In plan, Fehr & Granger commented that the relation of the kitchen to the bedroom wing seemed to force the dining area and entry area to become circulation space, questioned the adequacy of general storage space and observed: "The placement and orientation of the fireplace makes the west half of the living room more a part of the entry than of the living room." Drake explains that "in a servantless house, with parents and one or two children, I felt it best to throw all the hall space into the living area. Though I have not confined passage by halls, the normal circulation leaves a quiet spot in the dining area. Again, the fireplace end of the living room is a quiet spot from the usual traffic paths." As to storage space—and most of the other critics raised this point, too—Drake readily admits that it is somewhat shy here: "I always design storage space by

To insure privacy for the south-facing house, a five-foot fence separates the motor yard and inner court (photo at left). Control into the house is established at the gate. Photo across page shows the fenced living-room court. The dining room opens to another court, so that occupants may choose between sunny and shaded outdoor living.

Photos: Morley Baer

Left: the fireplace corner, with its built-in couch, cabinets, and shelving provides a measure of "retreat" from the otherwise opened-out scheme. Interior redwood is treated with clear lacquer.

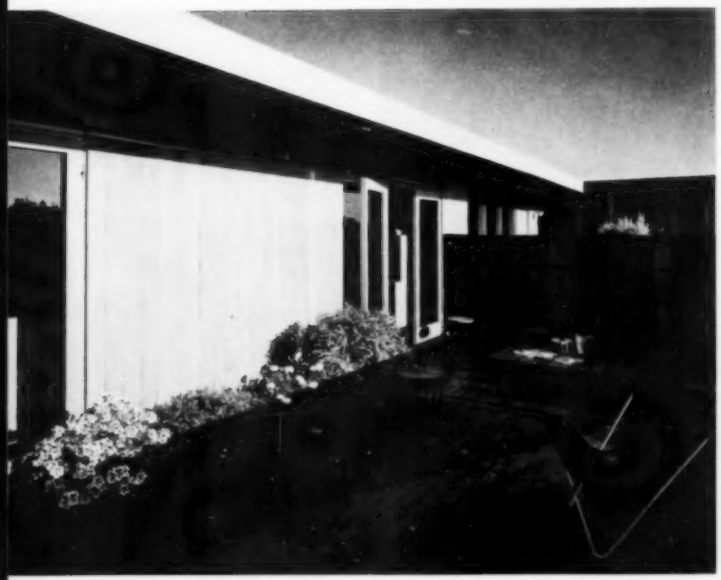
Below: view from the living room into the brick-paved, fenced front patio. All exterior redwood was treated with a gray creosote stain, with accents of black on the redwood trim.

use of cabinets," he says. "Economy knocked out most of the cabinets on the assumption that they could be put in later."

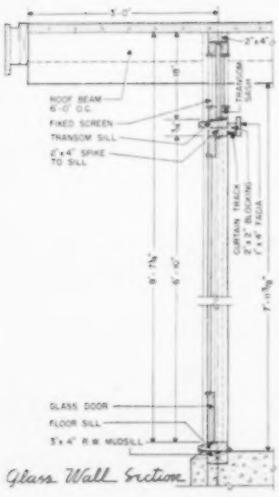
Characterizing the plan as "a nice plan thoughtfully done in rearrangeable units," Stubbins finds that "access from child's bedroom to bath has little privacy from the entrance and living room; and the linen closet seems too small, in my opinion." Drake replies that "provision was made for a sliding screen to separate living room from bedroom unit ($60 extra)." As for the size of the linen closet, this "depends on how much linen you have." Rudolph praises the concept of "enclosed gardens and rooms," commenting that "the motor court entrance leading one into a delightful patio and living room, where one has the additional surprise of seeing for the first time yet another court, seems very successful. This sequence of views is certainly part of our modern concept of architecture." Still, he questions "the smallness of the many courts and consequent feeling of enclosure. Would it have been better," he asks, "to have provided two larger courts or even one really large court where one might even have the luxury of a tree? Screens could subdivide such an area for privacy . . ." Drake replies "In regard to the courts, you're absolutely right. Taking a truly large area and breaking it up by screens and plantings gives a wonderfully large scale and yet retains intimacy and privacy . . . I think the important thing is that you have to get away from any relation to room sizes when you go into the garden. That's why this house fails, because in each case the room

Right: view through dining room out into landscaped dining-bedroom court. Notice ventilation transoms above door-head level (see also detail at bottom of page).

Below: the bedroom-dining court, on the west side of the house; beyond the fence is the kitchen-service yard, with garage in background.



CARMEL, CALIFORNIA



Glass Wall Section

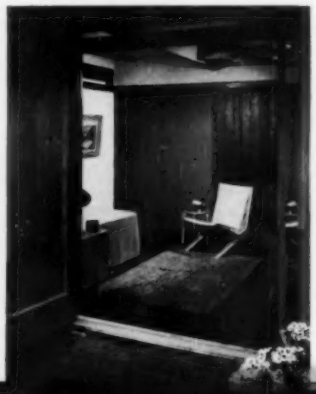
size is related to the garden size. It was worth this one house for me to find that out."

Fehr & Granger felt that "a more definite expression of the structural module in the plan would have been pleasing and beneficial to the house." Drake says that he did this in an earlier, larger job and "the pattern became very dominant. I wanted in this smaller house to see if it would be quieter by using the inner walls as plane surfaces, as a foil for the rhythm of the outer walls and roof beams." Rudolph also felt that "the rhythm of bents should have been left unimpaired when a bent is located over a partition, rather than sheathed . . . I feel that the changing of direction of the bents from north to south in the living room and garage, and east and west in the bedrooms and kitchen indicate a plan which is not thoroughly integrated with the structure . . ." To this, Drake responds: "The limitations imposed by the structural system become apparent when one turns the beams in the opposite direction. One can achieve complete clarity by taking a central bearing wall down the middle of a house and running two series of bents down either side. A later house explores this, and it works out quite well." Stubbins questions the 3-foot module. "It seems to me that this is not the module to fit standard building materials," he says. "The way I detail," Drake explains, "a 3-foot module makes it possible to use standard 2′-8″ doors. The local code called for studs 18″ o.c. for wood siding. Where one goes to wallboard, one has to go off the module."

Fehr & Granger feel that "the selection of materials and their handling throughout the house is most appropriate." Rudolph echoes: "The materials have been used beautifully, each one obviously selected because it did the job better than another one might have." Stubbins queries: "Doesn't the plank ceiling shrink inside the house?" "Brother, does it!" Drake agrees. "With the wet wood one gets now, I have given up plank roofs."

After asking all the questions, the critics conclude with genuine praise: "A regional character seldom seen in developers' houses." ". . . the designer is to be congratulated on achieving so much on so high a level for so little." ". . . a good solution, met with imagination." ". . . a very pleasant place to live due to honest use of simple materials, outer and inner living spaces, and the sense of scale." Rudolph paid a special tribute to the work of Douglas Baylis, the landscape architect: ". . . so well integrated that it is difficult to imagine the house without his garden treatments."

Top of page: view into the small private court of the eastern bedroom.
Right: view into the western bedroom from the western court. Transoms provide cross ventilation.



2. Austin, Texas

ARTHUR FEHR & CHARLES GRANGER, ARCHITECTS

program Home for a couple with two teen-age daughters, all of whom enjoy group entertaining. Original wish was for a "Colonial" style house, but discussion convinced the family that a more modern scheme would give them greater livability for their budget—$20,000 to $22,000, complete.

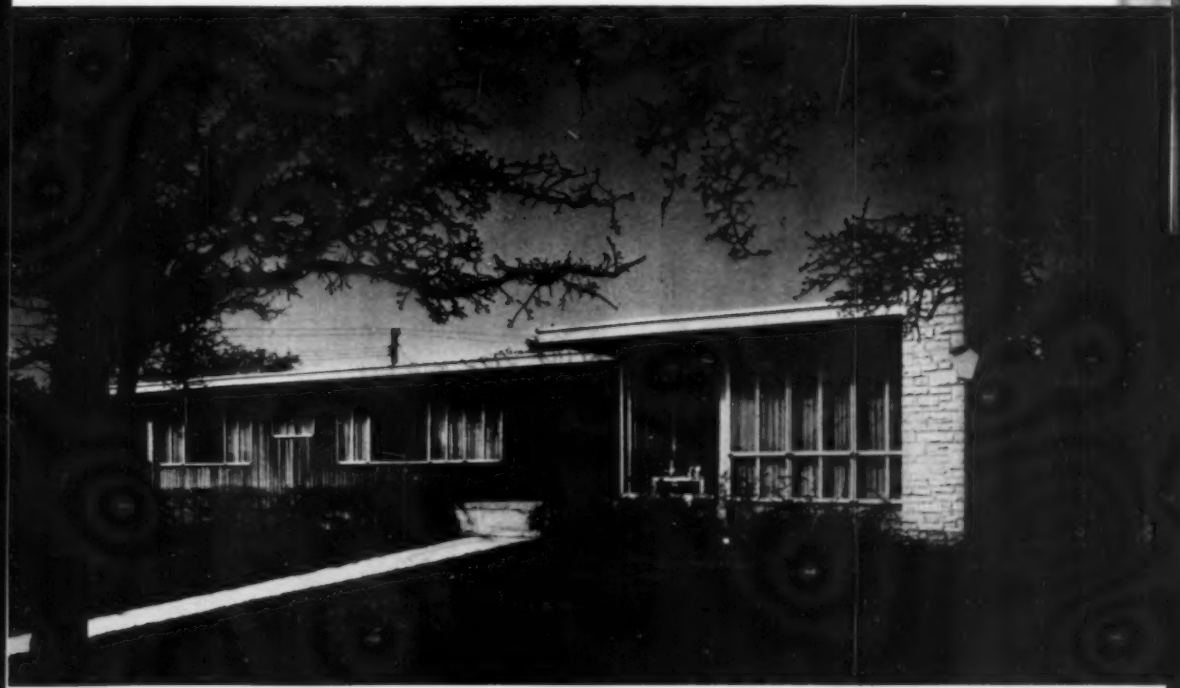
site A 110 x 208-foot lot, with streets, none of which carries heavy traffic, on the two short sides and along the east; about two miles from downtown Austin. A high lot with pleasant views south and east; excellent summer breeze from the southeast.

solution To accommodate the Austin climate, the house, arranged with living areas and bedroom wing on either side of the main entrance hall, is angled to cut out western sun from the bedrooms. A deep overhang on the west, the carport roof, and solid stone end wall (that parallels the west property line) provide a shaded terrace area and keep afternoon sun in the kitchen-breakfast room area within bounds. Sliding glass panels opening through to a kitchen serving counter occur on west wall of the entrance hall and provide cross ventilation when needed.

materials and methods CONSTRUCTION: *Foundation:* reinforced concrete (living areas and entry built on concrete slab on fill, bedroom wing, wood joist construction). *Frame:* wood frame. *Walls:* exterior—stone veneer, redwood, flat asbestos-cement board; interior—mahogany plywood, plaster. *Floors:* white oak; asphalt tile; linoleum; carpeting. *Roof:* built-up roofing over wood frame and deck. *Insulation:* acoustical—12 x 12 ceiling tile; thermal—wool type. *Fenestration:* steel casements; DSA and plate glass.

EQUIPMENT: *Heating:* forced warm-air system; gas-fired furnace. *Kitchen:* both electric and gas units.

critique In studying the plan, Drake finds "the basic elements related very well and the circulation well done." Rudolph, though critical of the use of site



("it seems strange to open up a living room facing a street, to the degree that this one is opened . . . so there is no privacy"), comments that "one can admire the rather simple massing, the play of materials of varying textures of the exterior and, sometimes, the fenestration." Stubbins, like Rudolph, questions the matter of privacy. Fehr & Granger state that "the elevation of the finish floor line above the street makes it impossible to see into the house from the street or when walking up the approach walk," although it is, of course, possible to see into the living room from the front terrace. This latter situation, they agree, is a valid criticism, but "the nature of the owners' requirements made the general relationship of spaces a direct outgrowth of their wishes."

"Where are brooms, mops, etc., kept?" asks Stubbins. "In the utility room," the architects explain. Drake observes: "With three bedrooms and two baths, it would seem that guests should be able to reach a bathroom without invading a bedroom." This plan element was "a specific wish on the part of the owners," according to the architects.

Concerning finished design expression, the critics all had things to say. Drake feels the house "lacks the thread of design that holds it together . . . looking from the carport into the kitchen and utility room, for instance, one sees six different types and sizes of door and window openings unrelated one to the other." "There is a lack of rhythm and too many different shapes and proportions in windows, doors, and other elements," Stubbins feels. Fehr & Granger point out that "the fact that one fellow participant sees six different openings in the view from the carport is a result of the fact that the plan was developed to meet the requirements of the owner, and the fenestration is a direct expression of the activities within these walls."

On use of materials, Rudolph comments: "The stonework seems to me to be particularly expressive in its simple rectangular forms. The expression of fixed glass as contrasted with vented areas is sensitively handled." Drake, though, thinks "too many materials are used . . . On the bedroom wing, I see concrete, redwood, stone, glass, sheet-metal downspouts, asbestos board, and steel columns." Fehr & Granger reply: "We have found nothing as satisfactory for windows as glass; sheetmetal downspouts are, in our opinion, a proven commodity; steel pipe columns are both economical

Below, left: the entrance hall, with bedroom hallway beyond.

Right: the pass-through serving counter, which (for parties) can be totally opened by sliding glass panels or (when desired) entirely closed off by panels and curtains. *Photos: Photo Associates: Ulric Meisel*

The southeast corner of the living-dining room commands a distant view, including the State Capitol and towers of the University of Texas. This direction is also the source of the favored summer breeze.

Floor Plan

Scale 0 10'

Photo at top of page: view from southwest, with band of southern bedroom windows between stone-veneered walls, at right; carport in distance at left.

Bottom of page: detail of carport. In midsummer, the roof and solid end wall provide a much-needed shaded terrace on the west side of the house. (The photographs shown were taken in early March.)

AUSTIN, TEXAS

and efficient, and, in Texas, much more satisfactory than redwood posts. The use of stone is economical and practical as it is a readily available local material; wood spandrels are, to us, satisfactory architecturally, economically, and structurally. Asbestos board on the west wall was an economy move made rather than reduce the livable area."

Others also questioned the use of numerous materials, and Stubbins asked, "Why is the outer edge of the gutter higher than the roof?" To which the architects reply, "The outer edging of the gutter is higher than the roof as the result of our experience with this detail. A few Texas wind and rain storms would explain this detail far better than mere words. In fact," they go on to say, "it seems obvious to us from the comments of some of the critics that central Texas is an unknown area in its climatic conditions, regional characteristics and peculiarities. We do not suggest that this house is a final answer to regional architecture here, but we do sincerely believe that it is a step toward the development of an honest architectural expression of the needs of this section . . . Ten years ago, a house such as this would have created more than mild turmoil in Austin. Today, it is accepted even by many lending institutions."

Above: general view of southern side of house, with ramp to private sun deck at left. Cement-block wall, at right, defines the entrance terrace.

Left: detail of walk to front door, sheltered by pipe-supported canopy that is an extension of the line of the in-sloping butterfly roof. Landscaping was in embryo stage at the time the photographs were taken.

Photos: Fred Stone

3. Hingham, Massachusetts

HUGH STUBBINS, JR., ARCHITECT

program Home for a family consisting of a couple, two school-age sons, and a mother-in-law. They realized that their budget of $15,000 would not provide an elaborate house. But, weary of apartment living, they were willing to double up in sleeping quarters in order to have a home of their own.

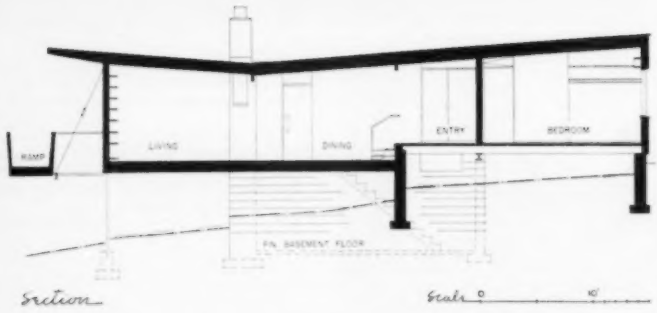
site Two wooded acres of ledgy hillside sloping away to the west, gently at first, then abruptly, to a salt marsh and—in the distance—a view of Hingham Harbor. Near the best building site was a large, dome-like rock with a flat top. Land bordered on the east by a newly developed road.

solution "The basic idea of the house," the architect tells us, "was to achieve the maximum visual spaciousness, including all the basic living requirements for such a family, in a simple form that would lend itself to a limited budget and the special requirements of the site." Living-dining room organized for two favored exposures—to the south, woodland, and to the west, ocean view. On the western end of the house, a sun balcony was provided and connected to the flat-top rock by a small ramp. The butterfly roof, the architect emphasizes, was used not as a stylish element but as the simplest method of accommodating the two levels of the living area and also as a counter angle to the ground.

materials and methods CONSTRUCTION: *Foundation:* cement block. *Frame:* 4 x 4 posts and 4 x 14 lintels. *Walls:* standard frame, surfaced outside with vertical T & G redwood; inside with plaster. *Floors:* wood joists; oak strip flooring; linoleum in kitchen and balcony. *Roof:* wood frame; 4-ply built-up tar and gravel.

Right: view of southwest corner of house, showing return of ramp from sun deck to top of rock outcropping.

Below: detail of projecting sun deck, partially supported by diagonal hanger rods.



Insulation: acoustical—vermiculite plaster; thermal—wool-type in roof; aluminum foil in walls. *Fenestration:* steel casements set in wood frames; polished plate glass.

EQUIPMENT: *Heating:* forced warm air system; oil-fired furnace. *Kitchen:* electric range, dishwasher, refrigerator, deep freeze, laundry unit.

critique

"In general, I think the plan is an excellent solution where economy of space was the all-important consideration" (Drake). "The house as a whole seems to be a simple and direct solution to a problem and indicates a home that will be well lived in" (Fehr & Granger). "An interesting solution to a difficult problem" (Twitchell). "The owner of this structure must often congratulate himself on hiring an architect who found it possible to provide so much usable space for so little money" (Rudolph).

But Drake, while admiring the organization of the plan in two rectangles and the way the entry area separates living and sleeping areas, thought the bedrooms "narrow in proportion to their width . . . Can you put twin beds in the children's bedroom?" he asks. "Yes," Stubbins says. "Even a table and two chairs have been accommodated besides; there are also bookshelves over windows and over beds. It's tight—the clients wanted to sacrifice large sleeping rooms for more living space—but it's adequate." Rudolph finds the floor plan "remarkably efficient . . . orientation of rooms seems good." But he questions whether the interior is successful in creating "a living, breathing, dynamic sense of space which all great architecture of the past has managed to do . . . It seems to me that one reason this is lacking in the living-dining room of this house is the fact that the whole interior is so evenly daylighted, an essential for a factory or school but

HINGHAM, MASSACHUSETTS

not in a dwelling." Stubbins points out that the photographs "do not adequately convey the space effects in the living-dining area. For instance, the break in the ceiling at its low point defines positively the living area, which runs in a north-south direction. The dining space is really the alcove through which one enters." As for the even daylighting, "actually, the lighting is not as even and intense as the critic suggests. Trees shade the windows at certain times of the year; the sun comes in different walls at different times of day, and there is another contrivance, commonly called curtains, that makes it possible to adjust the amount of daylight at any time . . . incidentally, the client wanted lots of light." Handling of the site brought applause from all the critics.

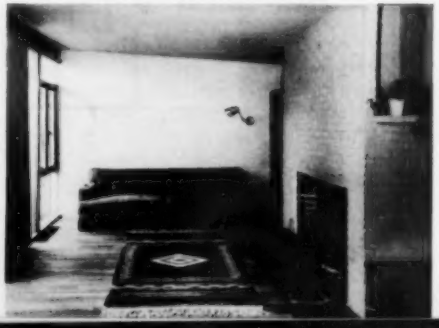
Commenting on structure, Fehr & Granger say "the exposed beams in the living-dining area are a logical expression of the direct and simple structure," but they find the V, or swept-back fascia, in the south elevation "difficult to justify." Stubbins explains: "The swept-back roof overhang came about from the theory that the lower the roof, the less the overhang

Left: southwest corner of living room: door to sun deck at right of adjustable book shelves. The house has a small, heater-storage-room basement (not shown in plan) under the kitchen-bath area.

Left: living-dining room, looking toward front door, screened by large plywood coat closet.

Bottom of page: fireplace corner of living room, with western windows (left) through which there is a distant view of the harbor.

must project in order to keep out summer sun on a south wall . . . At any rate . . . it softens the effect of a simple rectangle." Drake feels that "the butterfly roof is most pleasing," but he questions "the extension of the butterfly roof to act as a covered shelter from the garage to the house . . . The roof, supported by metal columns (above entry walk), seems not more than 5 feet wide and, at the end, some 9 feet in the air. I wonder if this gives shelter from a rain slanted by the wind." Rudolph also questions this detail: "The relationship of the covered entrance walk and the overhang on the south with its girder support does not seem successful because of the difference in the character of the support. I believe it would have been clearer to have disconnected the two elements." "In my experience," Stubbins comments, "a covered way must be very, very wide, or else enclosed, to completely protect a person in a blowing rain. This covered walk is as good as any umbrella. The idea of disconnecting this element was considered at length, but the complications of draining such a roof made the solution adopted seem more direct, simpler, and less costly." Several of the critics felt that the balcony and ramp rail was a rather "heavy" appearing element in the design, and Stubbins agrees, though he points out that "the rail on the ramp is solid because it is really a truss."



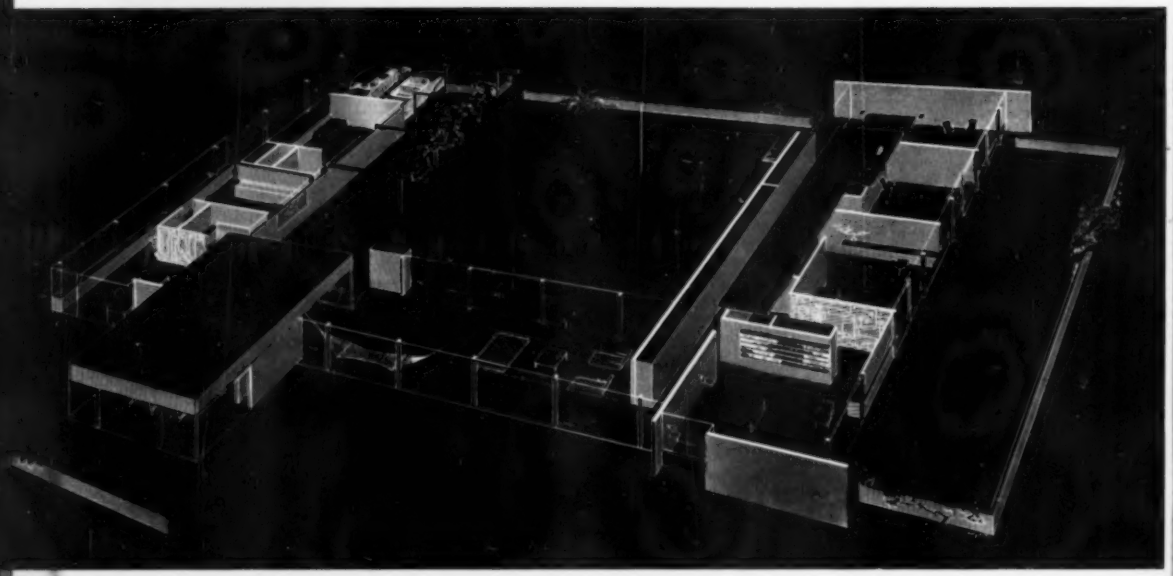
HINGHAM, MASSACHUSETTS

The entrance court (photo below) is toward the east; glimpsed through the huge windows of the sun room is the Gulf of Mexico. A diagonal walk, sheltered by an overhead arbor, leads from the garage to the front door (photo, at left).

Photos: Ezra Stoller: Pictor

4. Sarasota, Florida

TWITCHELL & RUDOLPH, ARCHITECTS



program A winter vacation home for a woman who entertains (in relays) her seven married children, twenty-two grandchildren, and their friends. The owner wished an environment for informal living, relaxation (sun bathing, reading, writing, etc.), and group activities, such as dancing.

site On a key off the west coast of Florida with 200 feet along the beach on the Gulf of Mexico, lot 350 feet deep; grove of palmettos and coconut palms.

solution The plan was organized in separate, though related, units—bedroom wing, sun-room connecting link; living-dining service area, well isolated from the sleeping area. Thus, one generation can entertain while another is sleeping. The bedroom wing is organized around a service core consisting of bathrooms, storage units, and the furnace room; a clerestory lights and ventilates the bathrooms, provides cross-venting for the two central bedrooms, and lights the passage. Sliding doors in the bedrooms open onto a walled garden. Structurally, the materials were chosen for easy maintenance —lime block, exposed on both exterior and interior; wood paneling; terrazzo floors; and a minimum of plaster. Light wood trusses, spaced two feet apart and spanning from 16 to 21 feet, rest on three 2 x 12's which, in turn, are carried around the perimeter of the building, bearing on solid cypress columns, 10′ o.c. A conscious design goal was to make the structural purpose of each member or element immediately apparent. In the living room area, a different system is employed for emphasis and contrast. Exposed cypress trusses span the room lengthwise "to oppose the length of the sun room and give emphasis to the view by leading one's eye in this direction."

materials and methods CONSTRUCTION: *Foundation:* reinforced concrete. *Frame:* pine trusses on cypress columns; cypress beams in living room. *Walls:* lime block, left exposed or (rarely) plastered; wood or plaster ceilings. *Floors:* concrete, terrazzo surfaced. *Roof:* bonded built-up roofing; light gray gravel surface. *Waterproofing:* 4″ cushion of live, clean shell. *Insulation:* acoustical—felt; thermal—ceiling tile; glass fiber. *Fenestration:* aluminum casements; DS and ¼″ plate glass.

EQUIPMENT: *Heating:* circulating warm air system; gas-fired (green fuel

liquid gas) furnace; aluminum ducts; controls. *Electrical:* fluorescent strips; recessed incandescent lights and fixtures.

critique

When one designer looks at a house another designed and says "I'd like to live in it myself," that's high praise. And Gordon Drake reacts precisely in this way to this Florida house. Basic organization of the plan was generally admired—"The separation of sleeping quarters from service and more active areas is good" (Stubbins); "The solution of isolating the various activities between lush gardens and connecting them all by the great roof of the sun room works very, very well," in Drake's estimation. Fehr & Granger find that "the disposition of the various functions of the rooms allows for the maximum of activity with the minimum of conflict."

In plan detail, Stubbins criticized the entrance element: "It is as open as the sun room . . . the directional feature from the garage brings one eventually to a full view of everything before entering," and concludes, "There are no surprises." Twitchell & Rudolph admit that "it was originally intended that a woven translucent screen should cover the glass wall of the living room toward the east," but this was eliminated at the client's request. Stubbins further speculates that if the living room is intended as a contrast to the sun room, to provide a cozy atmosphere for raw and rainy days, "it seems strange that it is nearly all glass with no roof overhangs, while the sun room has very wide ones." The architects point out that "the desire to introduce southern sunlight and take advantage of the especially fine view to the northwest has resulted in opening the room in these

Major elements of the plan are shown in the isometric across page—living-dining-kitchen-service wing, left; sun room connecting link, center; bedroom wing, right.

Below: looking north through the sun-room-entrance hall to the dining room beyond. The low table can be raised to dining height and, for large parties, placed adjacent to the regular dining table, which is the same width and depth.

Right: fireplace corner of the living room, with exposed trusses running the long way of the room.

Immediately below: looking south through sun room; bedroom wing, with clerestory above "service core" seen through east windows.

Bottom of page: the southern court, adjoining the bedrooms. Each 10-foot bay (between cypress columns) is filled with whatever best suits the need of the interior—from full glazed panels to combined open and closed panels—defining functional uses within.

directions." As to the huge western window, without roof overhang, "unusually heavy Australian pines tend to shade the living room, although we agree that the architectural relationship between the living room and the sun room was not completely solved." If the editors may interpolate, this discussion about western sunlight in these two rooms seems merely academic, if the picture of the living room showing the fireplace is studied. The roof overhang over the western windows of the sun room certainly doesn't keep the sun out; nor, at the time of afternoon this photograph was made, do Australian pines operate as a sun curtain.

It was around the structural concept that the most discussion centered. "We have read the explanation and studied the plan and photographs," say Fehr & Granger, "but we still find it impossible to justify the framing system utilized over the living room . . . The sheer weight of the structure at this point seems to destroy the lightness and informality which exists through the rest of the house." Stubbins also dissents: "The architects make a point of expressing the structure, regularity of supports, etc.," he comments. "This is certainly a commendable endeavor, but I do not think it comes off. The structure seems entirely too complicated and inconsistent with several different kinds of trusses and roof-framing systems. This is

SARASOTA, FLORIDA

Above: general view of approach (east) front; carport, right.

Left: east bedroom, viewed through an opened wall panel from the corner of the north court.

especially noticeable at the intersection of wings and in the living room." Regarding the structural situation at the intersection of the wings, Rudolph comments: "I agree that the clarity of structure is lost here. I do not agree, however, that too many kinds of construction have been used. The entire lower roof of the house has been constructed with trusses which vary only according to their span. The upper level of the living room has been elaborated with all of its structure exposed for contrast. I have nothing to add to the original explanation of the running of the trusses the long direction of the living room." (see "Solution".)

In sum, Drake says: "I find it difficult to find any major or minor faults." Fehr & Granger: "In general, this house is so simple and logical . . . that the house itself becomes a rather special feature in its entirety." Stubbins: "It has an informality of appearance which is disarming . . . It has a certain regional character and seems to belong in Florida."

Construction Payment Forms

By NORMAN THORSHOV*

Each contractor has his own method of presenting a breakdown of his construction cost immediately after award of contract, as well as his own method of submitting monthly invoices for payment. With several different jobs under construction and sometimes more than one contractor on a single job, the method of control and approval of breakdowns of cost as well as monthly invoices for payment becomes rather complex in an architect's office. We felt that if a uniform set of forms could be developed so that every contractor would present his breakdown as well as his monthly invoices in the same manner, records could be kept more simply and vouchers could be speeded up for payment. Our office consequently developed a set of forms which it furnishes to the contractor with specific instructions for their use.

Immediately after the award of a contract forms covering the Detailed Breakdown of Construction Costs are sent to the contractor. (See illustration below, left.) This form is made out in five copies, each a different color, with one copy to be retained by the contractor.

The top of the form listing the name of the project, owner, and contractor must be completely filled out. The commission number on the line with the architect's name is the commission numbering appearing on the drawings for the specific job.

*Long and Thorshov, Inc.

There are seven headings on the form. In column No. 1 a number is given for each item which is described in column No. 2. On some of the items such as excavating, concrete work, and steel it is possible to give the total number of units used in the job. On such items the number of units is listed in column No. 3. The cost of the items is then broken down in columns No. 4, No. 5, and No. 6 as to labor cost, material cost, and other costs. Often an item is a subcontract, so that it is impossible to break down the labor cost and the material cost. Such an item is listed in column No. 6 and again in column No. 7. Column No. 7 must be the total of columns No. 4, No. 5, and No. 6. Columns No. 4, No. 5, No. 6, and No. 7 must show totals and the total of column No. 7 must be the contract amount.

The form is signed by a responsible member of the contractor's organization, and dated.

If more than one sheet is required, this is noted in the numbering system of sheets at the upper right-hand corner of the form.

The contractors are next furnished with sets of Periodical Estimates for Partial Payment to be used each month. (Illustration below, right.)

The instructions for filling out this form are as follows: The monthly estimate is made out in five copies, each sheet being a different color. The final copy is re-

DETAILED BREAKDOWN OF CONSTRUCTION COST

Sheet 1 of 1 Sheets

Name of project: Office and Warehouse Building
Owner: Lake State Power Company
Independence Falls, Minnesota
Contractor: Lake City Construction Company
Minnesotalia, Minnesota

Long & Thorshov, Inc., Architects — Comm. No. 49-32

Item No. (1)	Description of Item (2)	Number and Kind of Units (3)	Estimated Labor Cost Dollars (4)	Estimated Material Cost Dollars (5)	Estimated Other Costs Dollars (6)	Estimated Total Cost Dollars (7)
	Subtotals Brought Forward					
1	Bond				1500.00	1500.00
2	Building Permit				75.00	75.00
3	Temporary Buildings	2	200.00	300.00		500.00
4	Excavating, grading & backfill	3000 yds	1400.00		1000.00	2400.00
5	Form work	2000 sqft	700.00	500.00		1200.00
6	Concrete	400 cu.yd	2000.00	3000.00		5000.00
7	Waterproofing				125.00	125.00
8	Reinforcing steel	15 tons	2000.00	1930.00		3930.00
9	Structural steel	25 tons	3500.00	2600.00		6100.00
10	Miscellaneous metals				1750.00	1750.00
11	Steel decking		1350.00	11275.00	1300.00	13925.00
12	Brick, tile, chimney, masonry		10500.00	7162.00	1250.00	19412.00
13	Carpentry and millwork		3600.00	2900.00	750.00	7250.00
	Totals		30,250.00	32,670.00	6,350.00	69,270.00

Approved by _____ (Contractor) Date _____

CONFIDENTIAL (Not for public inspection)

PERIODICAL ESTIMATE FOR PARTIAL PAYMENT No. 2 Date Ap 4, 1949

Sheet 1 of 1 sheets

For the period April 1, 1949 to April 30, 1949 inclusive
Name of project: Office and Warehouse Building
Owner: Lake State Power Company
Independence Falls, Minnesota
Contractor: Lake City Construction Company
Minnesotalia, Minnesota
Long & Thorshov, Inc., Architects — Comm. No. 49-32

Item No. (1)	Description (2)	Total Cost Dollars (3)	Per Cent Complete (4)	Amount Earned To Date (5)
	(Subtotals Brought Forward)			
1	Building Permits	$ 75.00	100	$ 75.00
2	Bond	1500.00	100	1500.00
3	Temporary Buildings	500.00	100	500.00
4	Excavating, Grading & Backfill	2400.00	65	1560.00
5	Form Work	1200.00	90	1080.00
6	Concrete (footings, walls, floors, etc.)	5000.00	50	4000.00
7	Reinforcing steel	3930.00	50	1965.00
	Totals			$10,630.00

tained by the contractor and the other four copies are transmitted to the architect for checking and approval.

On the first line is indicated the number of the estimate (whether it is the first, second, third, or fourth estimate). The date is the date upon which the estimate is prepared. If more than one sheet is required in the presentation of the estimate, this must be noted in the upper left-hand corner. The date covered by the estimate, the name of the project, the owner, and the contractor, and the architect's commission number must be completely filled in.

The breakdown of the estimate will cover all work done up to and including the final date of the estimate. It will include work previously done and paid for on preceding estimates.

Items upon which no work has been done should not be listed. All items must be numbered as on the detailed breakdown of costs, and all columns on the form must be completely filled out.

On the back of the form, under "Contract Recapitulation," (below, left) the date will be the date of the estimate. The contract amount is the original amount of the contract at the time of signing. Extras and credits include only those extras and credits which have been officially approved in writing up to the date of the estimate. The net contract will include the addition of the extras and the deduction of the credits.

The certificate of the contractor must be completely filled out, including the date of original contract. The total amount earned (a), is identical in total with the amount earned to date in column No. 5 on the front face of the form. The retained percentage (b), is the amount that the specification states must be retained until the completion of the job. The contractor's certificate must be signed by an authorized official of the company, and his title must be indicated.

The architect will sign the certificate of approval, after receiving and examining the form, and will then forward the estimate to the owner for payment.

A third form was also developed to take care of Change Orders and this form is also prepared in sets of five, each sheet being a different color (below, right). Five copies of this form are prepared by the architect and he fills in the seqence number of the change order, the name of the owner and contractor, the commission number, and the description of the proposed change. One copy of the change order as first prepared is retained in the architect's file, and four copies are transmitted to the contractor. In the paragraph called "Breakdown of Cost of Proposed Change," the contractor gives detailed information regarding labor and material costs and any other pertinent factors affecting the cost. He notes whether this is an addition or deduction to the contract price, signs and dates the change order. He retains one copy of the form as he has completed it and returns three copies to the architect. The breakdown of cost is then carefully checked and if it seems reasonable the architect signs his approval on three copies. These three copies are then sent to the owner with a statement that the cost seems reasonable and that acceptance is recommended. If the owner concurs in accepting the change order he signs all three copies and retains one for his file. The change order now bears the signature of the owner, contractor, and the architect. The owner returns two copies to the architect and the architect retains one copy carrying all signatures and then the other copy is sent to the contractor. Only when the contractor receives the copy with the three signatures does it become effective.

CONTRACT RECAPITULATION

Date May 4, 1949

Contract amount	$ 120,000.00
Extras approved to date	None
Credits approved to date	None
Net contract this date	120,000.00

CERTIFICATE OF THE CONTRACTOR OR HIS DULY AUTHORIZED REPRESENTATIVE

To the best of my knowledge and belief, I certify that all items, units, quantities, and prices of work and material shown on this Periodical Estimate are correct, that all work has been performed and materials supplied in full accordance with the terms and conditions of the corresponding construction contract documents between Lake State Power Company (Owner) and Lake City Construction Company (Contractor) dated ..... and all authorized changes thereto; that the following is a true and correct statement of the Contract account up to and including the last day of the period covered by this estimate.

(a) Total amount earned (col. 5)	$	10,650.00
(b) Retained percentage	$	1,065.00
(c) Total earned less retained percentage	$	9,612.00
(d) Total previously approved	$	2,700.00
(e) Amount due this estimate	$	6,912.00
(f) Unpaid previous estimates	$	None
(g) Total amount due	$	6,912.00

Contractor Lake City Construction Company By .....

Title .....

CERTIFICATE OF THE OWNER'S ARCHITECT

I certify that the Periodical Estimate, to the best of my knowledge and belief, is a true and correct statement of work performed and materials supplied by the contractor, and that the contractor's certified statement of his account and the amounts due him to contract and paid and that all work and material included in this Periodical Estimate have been performed in full accordance with the terms and conditions of the corresponding construction contract documents and authorized changes thereto.

LONG & THORESON, INC., ARCHITECTS

By .....

Date .....

CHANGE ORDER AND REQUEST FOR ESTIMATE Date May 24, 1949

No. 1

Owner Lake State Power Company
Independence Falls, Minnesota

Contractor Lake City Construction Company
Minneapolis, Minnesota

Long & Thoreson, Inc., Architects Comm. No. 47-32

Description of proposed change:

Extend footing depths and add additional concrete blocks to wall in order to set foundation on firm undisturbed soil as stated in specifications Section 13.

Breakdown of cost of proposed change: (by Contractor)

1,136 concrete blocks	$315.08
5.1 bbl. cement	21.65
2½ yds. sand	4.50
Labor	302.97
	643.20
Overhead 10%	64.32
	707.52
Profit 10%	71.07
	778.59

Add $ 778.59 or deduct $ ..... from total contract price.

Contractor .....
By .....
Date .....

Approved
Long & Thoreson, Inc.
By .....
Date .....

Approved
Owner .....
By .....
Date .....

p/a related design fields

Department Store Merchandising Units

building addition — SCHUTZE & ARMISTEAD, ARCHITECTS
HAROLD M. HEATLEY and KETCHUM, GINA & SHARP, CONSULTANTS

interior design — HAROLD M. HEATLEY and KETCHUM, GINA & SHARP, ASSOCIATE ARCHITECTS
JOSEPH AMISANO, DESIGN PROJECT CHIEF

This study is concerned with department-store fixtures, display and merchandising units designed for economy of construction, minimum maintenance, standardization, and interchangeability. These were designed as part of an extensive renovation and expansion program for Davison-Paxon Co. department store in Atlanta, Georgia, that included not only complete refurnishing and rearrangement of the old store, but the addition of a three-story-mezzanine-and-basement extension as well (photo at top of page shows the total complex). One of the largest department stores in the South, Davison's Atlanta now has a gross floor area of 575,000 square feet, of which 315,000 constitute the selling area for which the merchandising units shown in this study (among many others) were designed.

To plan and execute the interior modernization program, Davison's retained the team of Harold M. Heatley, resident architect for Davison's, and the New York firm of Ketchum, Gina & Sharp, to work under Davison's building committee headed by Charles H. Jagels, store president. The Atlanta office was specially concerned with program formulation, co-ordination, and supervision; also complete planning of non-selling departments. The New York office had as its particular duties the preparation of all plans of selling areas; design and detailing of fixtures; color selection; furniture and furnishings; inspection of fixture manufacturing, and supervision.

Ketchum, Giná & Sharp have long been known for their specialty-shop design (see the first of P/A's FIELDS OF PRACTICE studies, September 1948 issue). Chief distinguishing characteristic of the Davison's operation was its large scale. The theory behind the planning was that each department should be a "store within a store," with each "store" divided into "shops." But the wish was to avoid the cubicle approach; to treat each floor as one huge, co-ordinated room, with certain areas of departments given the character of individual shops.

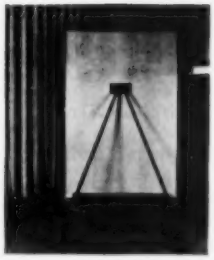
Devices employed to accomplish this included screens, partitions, fixturing, and display. In the fixture design, two factors were especially emphasized—(1) that they be interchangeable, and (2) in certain units (such as show cases, wall and center fixtures), standardized, since these were to be used throughout the store. To promote economy of initial cost and minimum maintenance, natural wood finish and metal structural members were preferred to painted surfaces or solid bases. Sales floor partitions were given a multiple function, as will be evident by study of some of the units shown on subsequent pages. They are used both as dividing walls and as fixtures for displaying and stocking goods on sale. The see-through screen in the Gift Department (large photo, facing page) is a good example.

The layout and fixturing of the Radio and Record Department (several units of which appear on pages 77-79) will serve as an example of the design procedure. Combining radios, records, pianos, and organs, the department was conceived as a music center. An important factor in its location was proximity to major appliances and toys, so that appliance and radio-record space could be condensed for Christmas toy expansion. After basic divisions within the department were established, preliminary sketches were made to show general layout of fixturing in relation to demonstration rooms and listening booths. Governing decisions were (1) that, in general, the department should be a self-service department; (2) there should be stand-up listening booths for single records (see detail, page 79); (3) the demonstration rooms for consoles (also see details, page 77) should be flexible in plan, taking into account unknown factors that might arise in connection with television's development. After numerous schemes, perspectives and individual fixture designs were presented to the buyer, merchandise counselor, service manager, display head, and store president, final approval was reached.

Below: general view of Gift Department (4th floor); "see-through" screen (⅛" wire fabric welded to 4" painted steel channels) serves both to segregate different categories of merchandise and as a background on which to hang displays.

Right: two views of print table (13/16" oak plywood, hardwood edges, with piano-hinged divider panels mounted on birch base). Clerk "leafs through" the file and leans selected print against the rear divider.

Photos: William M. Branham



Left: portable mirror, in Women's Wear Department (2nd floor), can be moved for viewing at any angle; used in conjunction with flat-face wall mirror and rolled to different positions (1" o.d. painted pipe with welded connections; mirror panel—13/16" fir plywood, painted gray, with removable aluminum channel edging).

Right: portable rug display (4th floor); smaller rugs are shown on a wheeled cradle unit (1" o.d. painted pipe with welded gussets and ½" o.d. painted tie rods; 2" casters) which rolls back for full display of larger rugs on the platform beneath (13/16" birch plywood, natural finish, with hardwood edges; clamped to frame).

brackets

Brackets are put to work throughout the store to present merchandise of various kinds at good visibility levels. Three adjustable types—for display of candy, drapery materials, and housecleaning materials—are detailed on facing page.

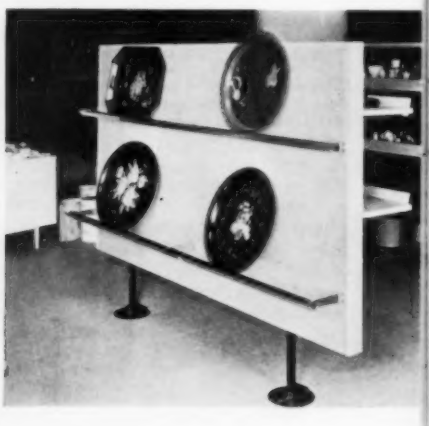
Left, above: Book Department.

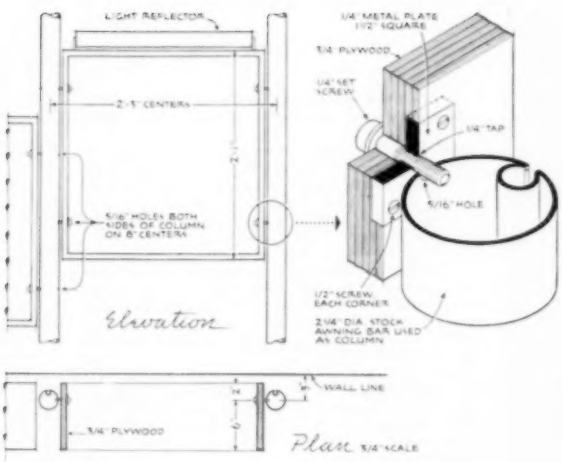
Top, above (also photo, bottom of page, left): brackets (10-g. painted steel sheets welded to 1" steel channel frame; held in place with butterfly nut and supported from 1" x 1½" painted steel tube).

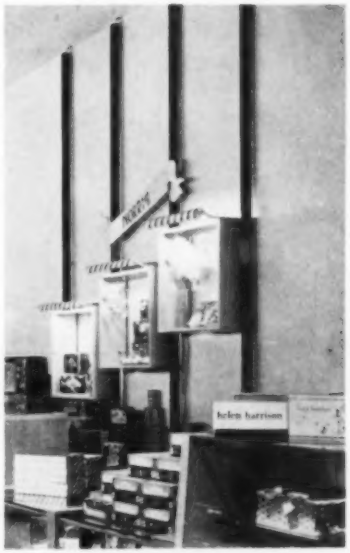
Immediately above: detail of book display (13/16" painted plywood divider supported on wall and ½" solid chrome steel leg; adjustable shelving of birch plywood; side display fixed brackets, 1¼" x 1¼" aluminum angles, tilted and spaced ⅜" away from background).

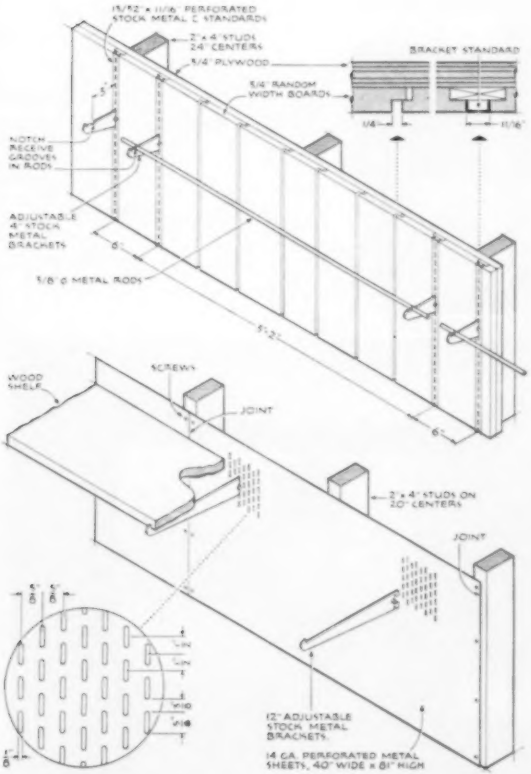
Below, center: island fixture for pictures (2" x 3" wood frame on 1½" o.d. painted pipe fastened to platform; ¼" fir plywood, covered with plastic-based burlap; 1" x 1" aluminum angles clipped to knife brackets on adjustable standards; platform, 3" off floor, covered with carpet; rubber-covered dowel outriggers are screwed into flush flange).

Below, right: Gift Department screen (wood frame attached to 1¼" o.d. painted type, welded to 8" dia. plates anchored to floor; brackets, 1" x 1" aluminum angles, clipped to knife brackets).



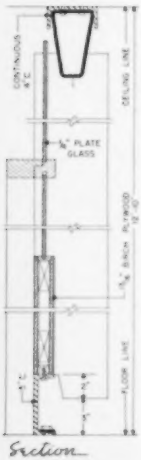






DAVISON-PAXON STORE,
Atlanta, Georgia

HAROLD M. HEATLEY AND KETCHUM, GINA & SHARP, ASSOCIATED ARCHITECTS,
JOSEPH AMISANO, DESIGN PROJECT CHIEF



Section

At left: see-through, demountable screen—a variation on the record-listening-booth demountable partitions shown across page.

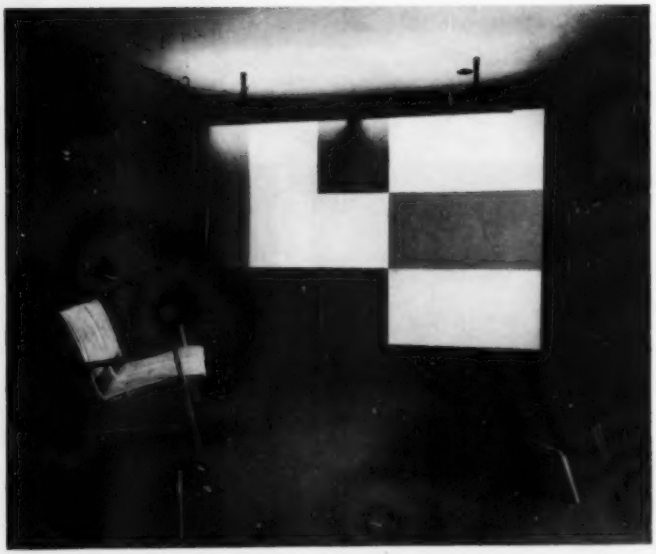
Another variation, shown immediately below, consists of demountable screen and interior partition units. These latter, like the ones detailed on the facing page, are of perforated metal on 2" x 2" wood frame, backed up with glass fiber insulation. Paneling is of 13/16" natural-finish birch plywood with hardwood edges; ¼" plate glass above.

Bottom of this column: a screen separating a lounge area from a selling department (¼" plywood on 2" x 3" wood frame anchored to floor and ceiling with 1¼" o.d. painted pipe. Paneling on lounge side, shown here, is painted in various colors; on the selling side, the surface is ¼" sheet cork for pin-up displays; lighting is a standard fluorescent strip with clip-on shields).

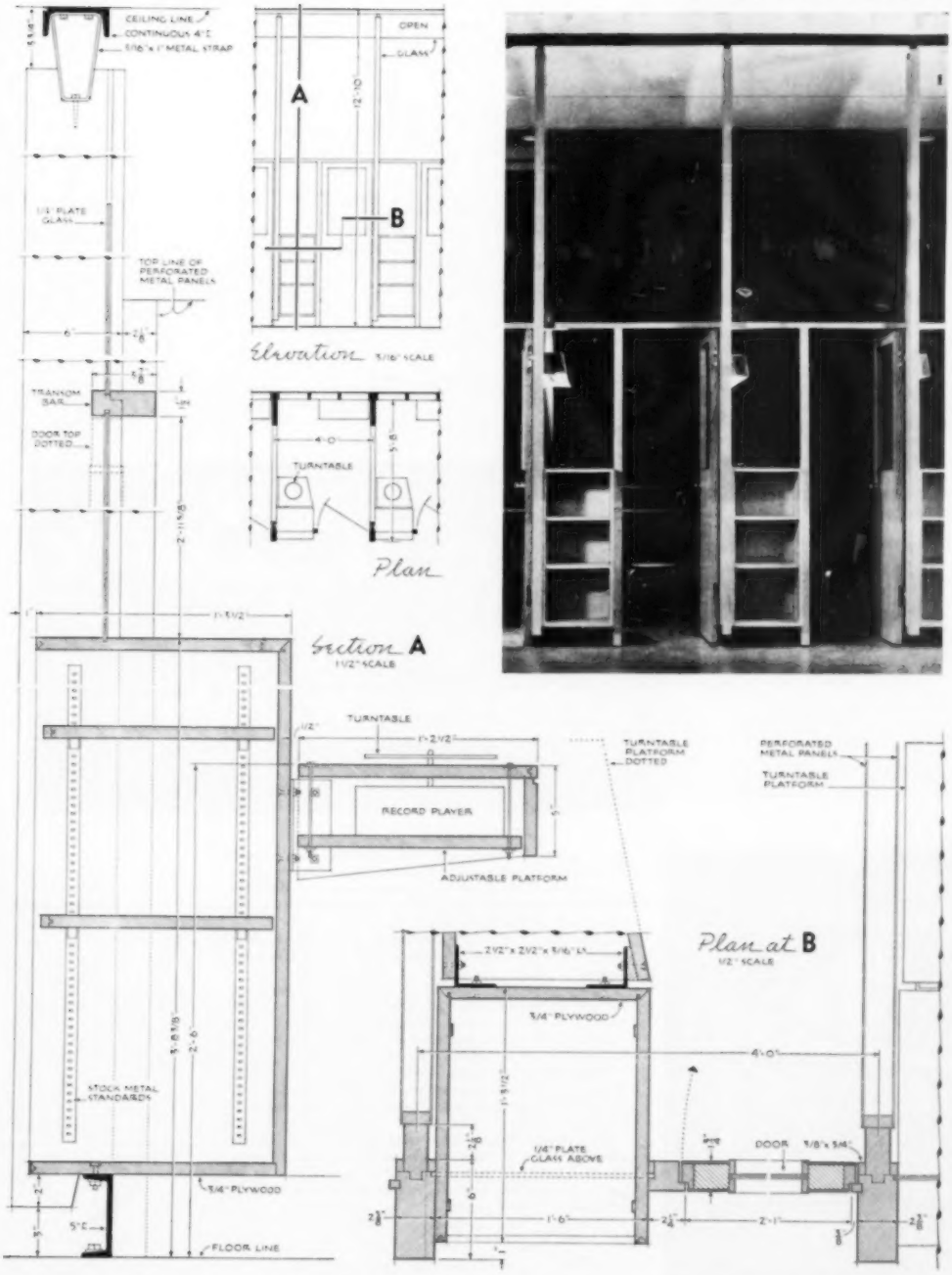
Bottom of page, left: top—a plywood screen (13/16" birch with hardwood edges) in the credit department, separating cashiers from tabulating operators; 2 tapered 1½" x 3" battens, spaced at quarter points for stiffness; supports are 1" o.d. painted pipe welded to 8" x 8" x ¼" painted steel plate anchored to floor.

Bottom, portable partitions to separate categories of merchandise (¼" birch plywood on 1½" hardwood frame. Top and bottom wood flanges stiffen center portion; screen supported on ½" chrome steel legs).

partitioning

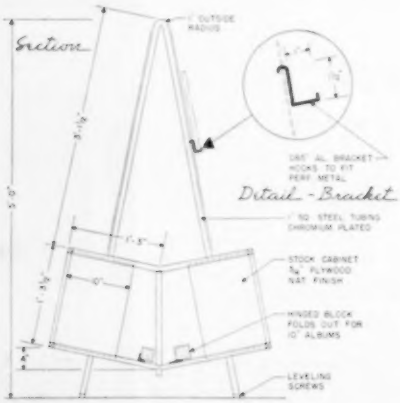


DEPARTMENT STORE: record listening booth



DAVISON-PAXON STORE,
Atlanta, Georgia

HAROLD M. HEATLEY AND KETCHUM, GINA & SHARP, ASSOCIATED ARCHITECTS,
JOSEPH AMISANO, DESIGN PROJECT CHIEF


Section
Detail - Bracket
OUTSIDE RADIUS
UNIT AL. BRACKET WITH HOOKS TO FIT PERF. METAL
½" SQ. STEEL TUBING CHROMIUM PLATED
STOCK CABINET ¾" PLYWOOD NAT. FINISH
HINGED BLOCK FOLDS OUT FOR 10" ALBUMS
LEVELING SCREWS

freestanding units

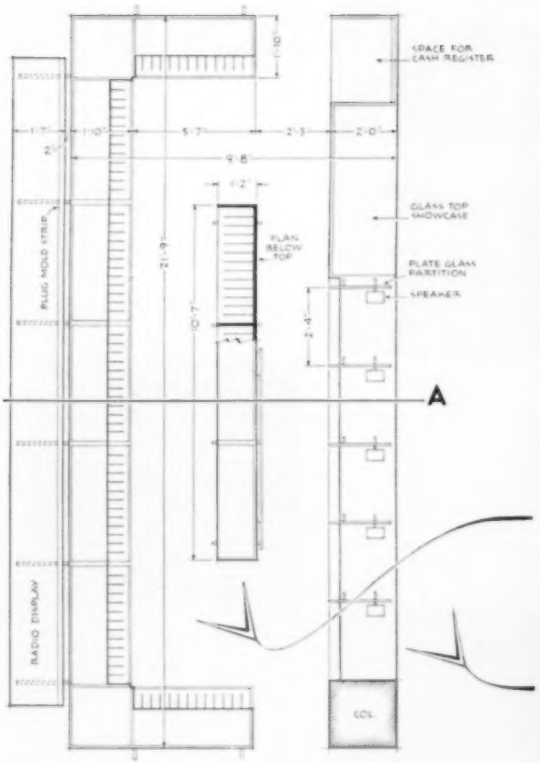
Supplementing partition and wall displays, screens, and brackets are numerous special-purpose free-standing units that occupy interior floor space within departments. On this page and the one opposite are several units from the Record Department on the third floor. The details on the facing page show an island storage fixture for single records (with shelf for record players at rear) and a record-listening counter.

On this page (top, left): an island fixture for display of 10" and 12" record albums (1" solid steel, square bars, with bolted connections; display background is perforated 14 g. painted metal; albums supported on aluminum channel sections; cabinet is natural-finish birch).

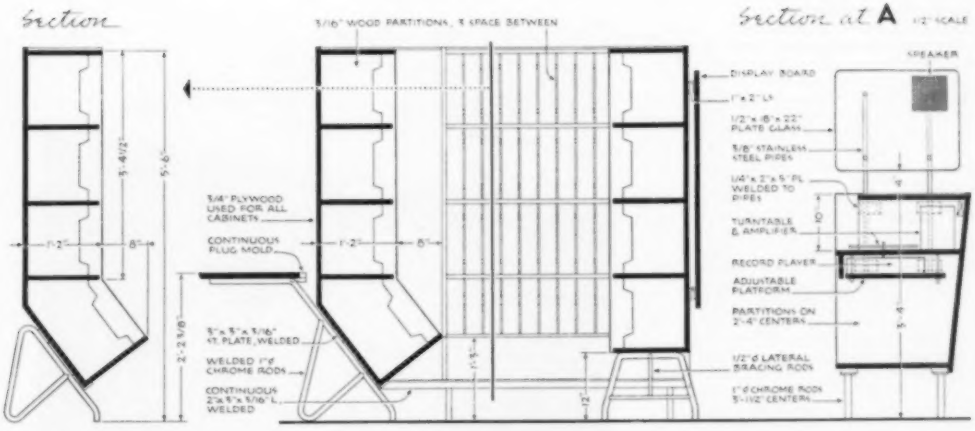
Immediately above: album wall-display fixture (box framing supported on 2" x 12" fastened to 1" o.d. chrome pipe frames; cabinet is 13/16" birch natural-finish plywood with hardwood edges).

Left: storage fixture for portable stock (1" o.d. chrome pipe with ⅛" x ½" diagonal chrome braces. Shelves giving lateral support are fastened at ends with aluminum angles set in the wood and bolted to end frames; shelves are 1⅛" solid maple, natural finish).

DEPARTMENT STORE: record listening counter and storage unit



Plan 1/4" SCALE



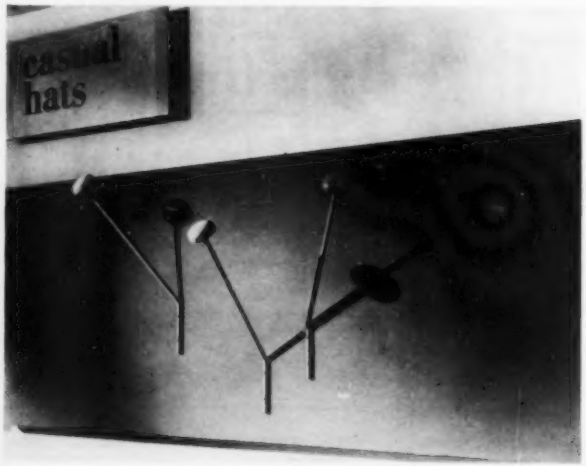
DAVISON-PAXON STORE,
Atlanta, Georgia

HAROLD M. HEATLEY AND KETCHUM, GINA & SHARP, ASSOCIATED ARCHITECTS,
JOSEPH AMISANO, DESIGN PROJECT CHIEF

Signs throughout the store are keyed to a co-ordinated master plan; all standard, removable departmental signs consist of 13/16" plywood panels with splayed, hardwood edges, held by aluminum clips to solid wood blocks, fastened to the wall—or, in some instances, mounted on projecting brackets. Lettering is 3" Bodoni, lower case, silk-screen printed.

Top of page: an island display for shoes (13/16" plywood with shaped hardwood edges supported on 1" o.d. painted pipe frame; display surfaces carpeted).

Bottom of page: wall display for millinery (⅜" painted metal dowels screwed to a background of plywood covered with plastic-base burlap).



Control of Radiant Panel Heating

By EDWIN F. SNYDER*

Interest in radiant panel heating has increased so tremendously since the end of the war that it has called for serious study on the part of temperature control manufacturers to provide the proper kind of comfort control with this type of heating. Because of some of the inherent features of radiant panel heating, the type of controls generally used with standard convection systems usually are not adequate with this type of system.

Radiant panel heating systems may be classified in two ways. First, by panel location such as floor, wall, ceiling, and baseboard. And secondly, by means of a heating medium such as hot water, warm air, or electricity. In some instances, these systems combine one or more of the basic types with a form of convection heating and become, in effect, split systems.

Each type, or combination of types, of radiant panel heating has its own peculiar characteristics from a control point of view, and must be handled individually. Radiant floor panels are generally considered to offer the biggest control problem and will be considered first.

Radiant floor panels are most commonly constructed by pouring a concrete slab directly on the ground with water pipes or air passages about midway in the slab. The panel is usually constructed so that there are about 2" of concrete below the pipes and 1½" to 2" above the pipes. This construction, of course, gives a large mass to the panel, and this mass is the source of most control problems. Due to the construction, floor panels are very popular, particularly in low cost housing.

*Minneapolis-Honeywell Regulator Company

The maximum surface temperature of a floor panel is normally considered to be about 85F. Discomfort is apt to begin beyond this temperature, and this limitation furnishes the second control problem with this type of heating system and is one which will be discussed in some detail.

Since outdoor temperature can usually be considered as a measure of heating load (neglecting the variables of sun, wind, and occupancy), then Figure 1 shows graphically the relationship between outdoor temperature and floor surface temperature. With 70F outside air, no heating is required and a floor surface temperature of 70F is satisfactory. At the assumed outdoor design of zero F, comfort heating must be supplied, but a floor surface temperature of 85F must not be exceeded. This means that a heating load variation represented by a span of 70F in outdoor temperature must be compensated by a heat source which is allowed to vary only through a span of 15F, thus giving a ratio between outdoor temperature change and panel surface temperature change of $\frac{70}{15}$ or 4.67:1, and this ratio becomes greater with lower outdoor design temperatures. Referring again to Figure 1, it can be seen that a 10 percent change in load or 7F change in outdoor temperature must be compensated by only a 1.5F change in floor surface temperature. And, of course, a smaller change in load must be offset by a correspondingly smaller change in floor surface temperature. As a result, the temperature controls used must respond almost instantly to a change of temperature of a small fraction of a degree to prevent the system from going into an uncontrolled "hunt."

The large mass of the average floor panel was also mentioned as presenting a control problem. This is due to the fact that the mass is directly related to the heat storage capacity of the slab and the thermal inertia of the panel. Since considerable heat is necessary to raise the temperature of one pound of concrete one degree (about 0.27 Btu per pound or 40.5 Btu per cubic foot), and since the conductivity of concrete is relatively low, it can readily be seen that a small change in heat input to the panel is very slow to manifest itself as a change in temperature of the panel surface. The thermal inertia of the structure, on the other hand, may be something entirely different from the panel so that a small change in outdoor temperature may be felt within the structure in much less time than a corresponding change in heating medium temperature would be felt on the floor surface. This would be the condition usually found with light frame construction utilizing a concrete floor panel. Figure 2 illustrates graphically what usually happens to room temperature when standard convection heating controls are used on a radiant floor panel (the temperatures shown are arbitrary and used for illustration only). When a change in outdoor temperature occurs, it is some time before the change is felt indoors and calls for a change of heat input through the control system. Then, because of the thermal inertia of the panel, previously discussed, there is more time lost before the panel surface temperature changes and begins to affect the room temperature. During this time, the room temperature is continuing to change and as a result, calls for a still larger change in heat input. This same effect then takes place in the opposite direction, and large swings in room temperature are felt until the system finally settles out. This discussion is, of course, based upon the

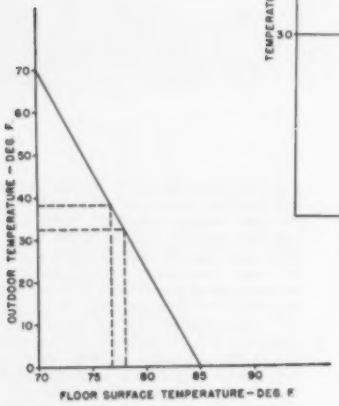


FIG. 1

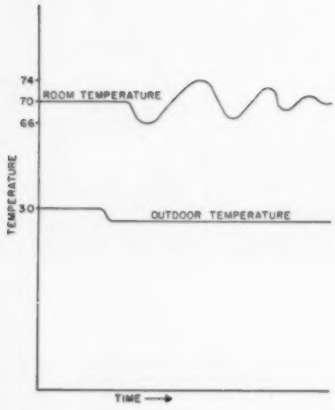


FIG. 2

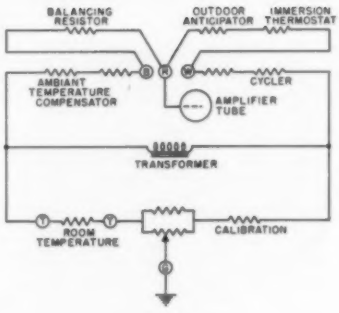


FIG. 3

use of the ordinary room thermostat with a certain mechanical differential through which it must operate.

A summation of the common radiant floor panel characteristics would include the following items:

1. High mass
2. High thermal inertia
3. Small range of surface temperature
4. Slow response to change of heat input

A control system must govern the basic heating system in such a way that in spite of any adverse conditions, the temperature of the occupied space is maintained at a comfortable level. In order to accomplish this end result with a radiant floor system, the controls must:

1. Be extremely sensitive
2. Respond almost instantaneously to load changes
3. Be simple in nature
4. Respond to outdoor temperatures
5. Furnish periodic cycling in accordance with load
6. Be service free
7. Have eye-appeal
8. Be low in cost

In order to fulfill these requirements, it is necessary to go to electronic controls and the simplest forms of this type utilize the principles of the Wheatstone Bridge. Figure 3 shows schematically a control circuit of this sort and Figure 4 a photograph of the actual controls. In Figure 4, the photograph shows the relay amplifier (1), outdoor anticipator (2), immersion thermostat (3), room thermostat (4), and cycler (5). It will be noted that the system includes only temperature sensing elements consisting of simple coils of wire which have the ability to change their electrical resistance along a relatively straight line as the temperature changes. It will also be noted that all of the temperature sensing elements are located in the same bridge circuit, and as a result, the operation of each element is interlocked with every other element to give a single end result.

The outdoor anticipator will immediately signal any change in outdoor temperature so that it is not necessary to wait for this change to be felt indoors before the heating system responds. In this way, part of the time lag in the panel is overcome by taking advantage of the time lag through the walls of the structure. The immersion thermostat, which is recommended on all floor panels, is in series with the outdoor anticipator and is located in the return line so as to measure the temperature of the water after it has passed through the radiant panel. Since these two controls are in series, they act very much like a simple indoor-outdoor control. As the resistance of the outdoor element decreases, due to a drop in outdoor temperature, the resistance of the immersion element must be increased by raising the temperature of the water in order to maintain the desired balance in the bridge circuit. In this way, the water temperature is automatically increased as the heating load is increased.

Since outdoor temperature alone does not always give a true indication of heating load, it is necessary to take into account the effects of sun, wind, cooking, and occupancy. This is accomplished through the use of the room thermostat which is located directly in the occupied space and senses the true heating load as represented by air temperature. The room thermostat has the ability to modify the action of all other controls so as to give the exact room temperature desired. This control has a sensing element whose mass is only about 1/110th that of the best bimetal type mechanical thermostat. As a result, it responds almost instantly to a change in temperature. A change of only a small fraction of one degree at the thermostat is sufficient for the con-

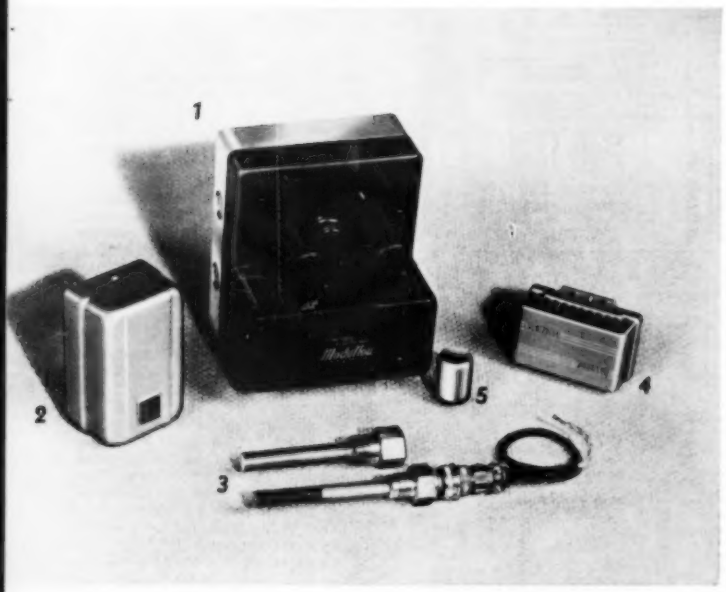


Figure 4.

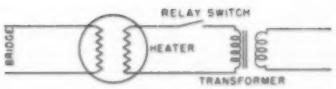


FIG 5

trol system to respond.

The cycler, as illustrated in Figure 5, consists of one winding of temperature sensitive wire and one winding that is a small resistance heater. When the switch closes and energizes the heater, the temperature rise at the bridge element tends to restore the balance in the bridge in the same manner as a rise in temperature at the thermostat or the outdoor anticipator. Since the heater is only energized when there is an operation of the heating system, it can be seen that the cycler will assist in balancing the bridge and, also, in cooling down, assist in unbalancing it and thus anticipate the requirements of the occupied space.

The cycler action is modified by the action of the outdoor anticipator, the room thermostat, and the immersion thermostat in order to set up a cycling rate that will give just the right amount of heat to maintain an even temperature. This cycling action will continue at the same rate just so long as there is no change in condition at one of the sensing elements. The moment such a change occurs, the cycling rate is changed to meet the new requirements.

Because of the action described, the fluctuation in heating medium temperature is held to a minimum for any given condition and, as a result, over-shooting in room temperature is eliminated, and the time lag in picking up panel temperature when heat is required is reduced to a minimum.

The relay amplifier serves as a nerve center for all of the external electronic controls. It receives all the minute signals, amplifies them to the proper strength, and controls the heat source accordingly.

The controls for radiant ceiling panels are basically the same as those just described. They differ only in two respects. Since ceiling panels generally are constructed of coils or ducts for water or air and with just a thin layer of plaster over the coils, they do not have the high mass and high thermal inertia of the typical floor panel. As a result, the time lag through the panel is quite small, and a clock type room thermostat may be used; thus, all of the advantages of lowered night temperatures may be realized. Also, due to the high degree of sensitivity found in the electronic controls and the relatively rapid response of this type of panel, it is not necessary to use the immersion thermostat that is used with the floor panel.

The application of these controls is as simple as the controls themselves and offer very few problems. The various applications considered are listed here and will be discussed in detail later:

- Radiant Floor Panel:
  - Forced Hot Water
    - Single zone with domestic hot water
    - Single zone without domestic hot water
    - Multiple zone with domestic hot water
    - Multiple zone without domestic hot water
  - Forced Warm Air
    - Single zone
    - Multiple zone
- Radiant Ceiling Panel
  - Forced Hot Water
    - Single zone with domestic hot water
    - Single zone without domestic hot water
    - Multiple zone with domestic hot water
    - Multiple zone without domestic hot water
  - Forced Warm Air
    - Single zone
    - Multiple zone
  - Electric
    - Single zone
    - Multiple zone

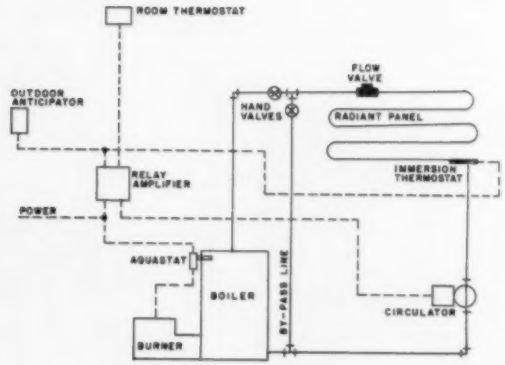
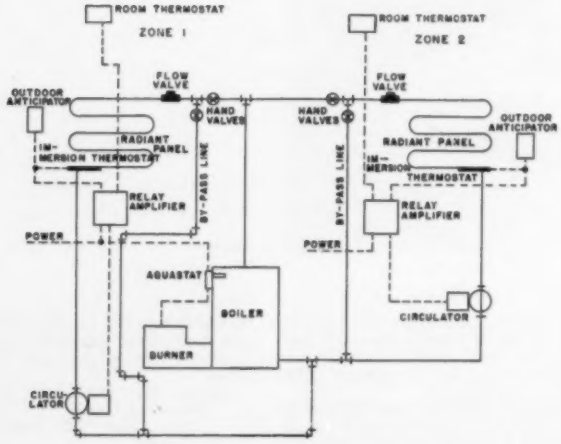


FIG. 6



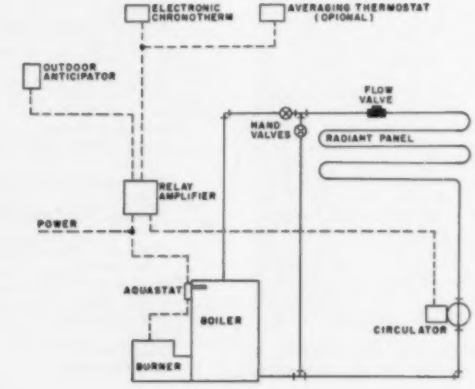


FIG. 8

Figure 6 illustrates schematically the application of these electronic controls to a radiant floor panel, forced hot water with domestic hot water. It will be noticed that the problem of furnishing high boiler water temperatures for domestic hot water and relatively low water temperatures for the panel is handled in an extremely simple manner. The by-pass line and the two handset valves in the by-pass and boiler lines take the place of the costly three-way mixing valve that was generally used in the past to reduce water temperatures to meet panel requirements. With the circulator in operation, these valves can be adjusted so that the temperature of the water entering the panel does not exceed the design value under outside design temperature conditions. The burner is under control of an aquastat which is set to maintain the boiler water temperature at the level required for domestic hot water demands. The electronic controls cycle the circulator so that the mean water temperature in the panel is just sufficient to meet the heating load requirements.

The application to a forced hot water radiant floor panel without domestic hot water is not shown since it is only necessary to modify the application shown in Figure 6 slightly. Since domestic hot water is not being furnished by the heating boiler, the by-pass line and hand valves may be eliminated. The aquastat is still used to control the burner, but it is set in this case for just slightly above the panel design temperature.

Figure 7 is a schematic diagram that illustrates the application to a multiple zone forced hot water radiant floor panel system, in which the heating boiler also furnishes the domestic hot water. It will be noted that the same system used for the single zone application is duplicated here for each zone. This method of control is ideally suited to the problems faced in many of the large rambling one-level style homes so popular today. Modern style demands, among other things, large window areas in the home, and these areas are frequently located on the sunny sides of the structure. Since window glass of the popular types transmits solar heat very rapidly, it is possible to change the heating load in one part of the home almost 100 percent in a matter of minutes while the load on the balance of the building remains unchanged. The same condition is found in a living room or den when an open fireplace is used,

or in a game room with several tables of bridge. The heating loads found in these rooms are not at all typical of those in the rest of the home. It is highly desirable to keep work areas such as the laundry or kitchen at a lower temperature than the other areas when there is little physical activity. Another factor to consider and to make multiple zoning desirable is the different floor coverings used. A single structure may have floors ranging from bare concrete to fully carpeted floors. Since carpeting, rugs, and similar materials act as insulators, it is necessary to carry higher panel temperatures in these areas in order to maintain comfortable air temperatures.

The by-pass lines and valves in each zone allow the installer to adjust for the maximum panel temperature necessary to meet all the conditions found in each particular zone. The control system then operates the circulator for its own zone along the proper cycle timing to maintain the temperature desired. Due to the sensitivity and extremely rapid response of electronic controls, there is no time lost waiting for a change in load to be reflected in interior temperature changes.

Forced hot water radiant ceiling panels, as discussed before, do not offer quite all of the problems found in the floor types. The primary differences, as indicated in the schematic diagrams, Figures 8 and 9, and in the photograph in Figure 10, are the use of a clock-type thermostat and the absence of the immersion thermostat. Figure 10 shows the relay amplifier (1), outdoor anticipator (2), electronic chronotherm (3), cycler (4), and averaging thermostat (5). The use of the averaging thermostat is optional. In this application there are several possible ways to control the burner and circulator, but it is still recommended that the electronic controls cycle the circulator, and the burner be controlled by an aquastat. In this way advantage is taken of the more rapid heat transfer rate. No attempt has been made to show schematic diagrams of the systems without domestic hot water since they would be so similar to those shown for the floor panels.

Single zone radiant panels utilizing warm air as the heating medium may be handled with exactly the same controls used with their counterparts in the forced hot water panels. The only difference would be that with the warm air panels, the blower is run continuously under control of a conventional

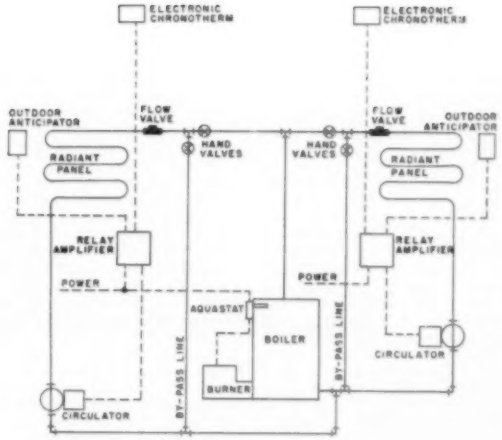


FIG. 9

Figure 10.

fan control and the electronic controls are used to cycle the burner itself. This change is made necessary by the relatively small amount of heat contained in air, compared to that contained in an equal weight of water at the same temperature. The enthalpy of dry air in Btu per pound at 105F is given as 25.232 and at 70F as 16.816 or a release of 8.416 Btu per pound. The enthalpy of water at 105F is given as 73.04 and at 70F as 38.11 or a release of 34.93 Btu per pound of water. From these figures, it can be seen that one pound of water will release about four times as much heat as one pound of air over the temperature range found in a radiant floor panel. Figure 11 shows schematically the application of electronic controls on this type of heating system.

Multiple zone control of a forced warm air radiant panel is handled in a manner very similar to that used on forced hot water. In this application, as shown in Figure 12, the burner is controlled by an outdoor reset controller which automatically raises the temperature in the plenum temperature as the outdoor temperature falls and lowers it as the outdoor temperature rises. The control operates along a prearranged program so that the temperature of the heating medium is always roughly commensurate with the heating load. The final control of the space temperature is controlled by a modulating type room thermostat which governs the position of volume dampers in each zone main duct so that the volume of air entering each zone is modulated to just offset the heating load. Normally, the outdoor reset controller is set to give slightly higher temperatures than normally desired, and the zone dampers then reduce the heat input to meet actual demands.

Electric panel heating is becoming increasingly popular and usually consists of panels with a low mass and low thermal inertia. It is extremely flexible in application and lends itself very readily to multiple zone or individual room control. The primary control is a fast cycling room thermostat that controls the pilot side of a load relay. The rapid cycling thermostat gives a very narrow fluctuation in panel surface temperature at the desired level. As the load changes, the mean surface temperature is changed appropriately to meet the new load demands. Figure 13 shows a simple circuit diagram for this type of control.

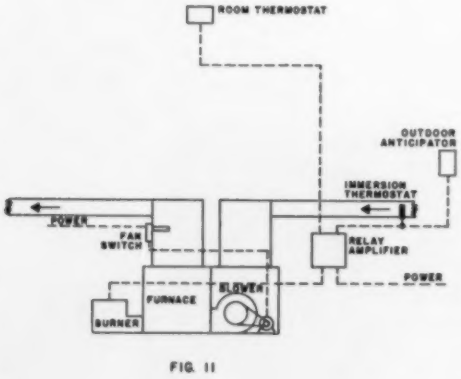


FIG. 11

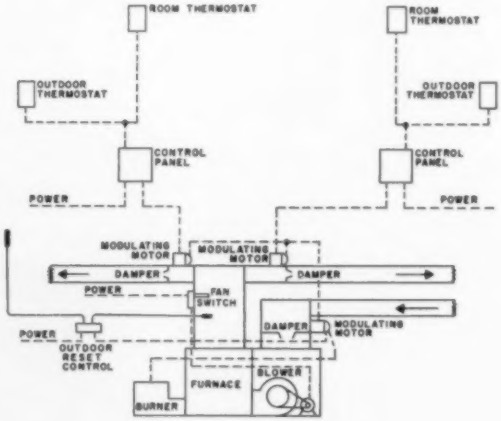


FIG. 12

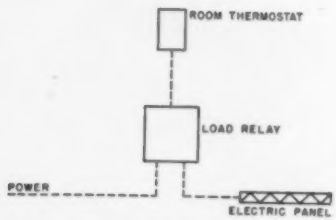


FIG. 13

Television Antenna Systems for Multiple Dwellings

By IRA KAMEN*

Television facilities for multiple dwellings deserve the same care and consideration during construction that are given to plumbing, heating, and ventilation. Installation of these important facilities after construction has been completed often results in more expensive and less satisfactory systems, with exposed wiring and equipment placed in undesirable locations. It is anticipated that built-in and portable antennas will never solve the television reception problem in multiple dwellings. This conclusion is based on the fundamental phenomena in physics that television waves, like light waves, will not bend, nor will they penetrate structural steel, metal lath, copper flashing, and so on; in addition, they will be attenuated by dielectric materials such as brick, stone, mortar, and others. An increase in power on present television channels is not practical and would result in interference with neighboring stations in nearby cities; furthermore, an increase in power would not solve the multiple reflection problem as the ratio of the desired signal, with respect to its reflections, would remain the same.

Figure 1 pictures a familiar sight in urban areas where a building, marred by a mass of unsightly, troublesome, and dangerous individual antennas, is also defaced by exposed lead-in wiring running along its walls. Installation of individual antennas, in addition to ruining the appearance of a building, often develops continuous and expensive maintenance problems, as these external antenna installations are not performed by trained mechanics but by those who are relatively unskilled in the mechanical arts, in comparison with trained electricians.

Contrast the rooftop view in Figure 1 with the permanently installed television master antenna system shown in Figure 2. In the latter, the tenants of a newly constructed apartment house are served from one neatly installed antenna per TV station, with concealed wiring to outlets in each living room, ready for plug connection of standard television receivers. It seems paradoxical to set up engineering specifications for power, lighting, elevators, and bell systems, and then allow the building to be torn to pieces by countenancing uncontrolled television installations.

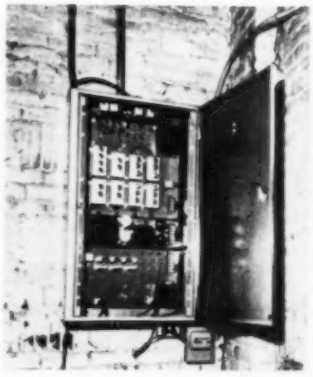


Figure 1, above: these familiar installations not only have a ludicrous and unattractive appearance, but also they frequently lead to serious maintenance problems.

Figure 2, right: the master antenna system on this apartment house tower serves all of the tenants in the entire building.

Figure 3, below: antenna booster amplifier rack containing one booster amplifier for each television channel plus FM and AM amplifier unit with booster supply.

A television master antenna system must provide performance in accordance with the following specifications:

1. Signal level at all television outlets shall be not less than 1000 microvolts on all television channels, which is a 100 percent safety factor over the minimum signal level specified by the Federal Communications Commission for stable television reception. A 100 percent safety factor is absolutely necessary to assure the longevity of the installation as the general aging of cables, contacts, and so forth, over a period of five or six years will tend to decrease the television signals available over coaxial cables.

2. Reflections induced into the television antenna on each television channel shall be such that they do not mar the picture to an objectionable degree from the normal viewing distance.

3. Television pictures on all channels shall be of a signal to noise level whereby the noise cannot be seen in the picture background from the normal viewing distance.

The following are general equipment and installation specifications (see Fig-

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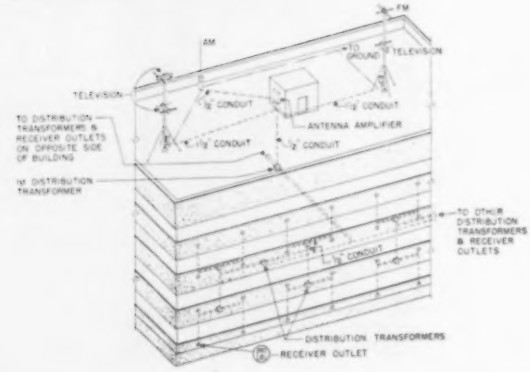
Figure 4, above: four-to-one distribution transformer distributes signals from output of amplifier to apartment risers. With separation of transmission lines, a short in one will not cause a failure of the entire system. Not all systems, however, are of the distribution transformer type.

Figure 5, left: receiver outlets when properly located eliminate exposed wiring.

Figure 6, below: this diagram shows the relationship of the various integral pieces of equipment which make up a television master antenna system.



ure 6 for approximate locations in a typical building):

Antenna: The television antenna shall be designed to match coaxial cable transmission line and be supported by a metal mast which is grounded to the nearest suitable ground for lightning protection. The antennas shall be custom built for each television channel and shall have connection facilities whereby it is possible to seal hermetically the ends of the coaxial transmission line which is used to feed the antenna signals to the antenna amplifier. All antennas shall be mounted to a structural member such as a roof joist or equally substantial foundation. Guy wires should be used where the antenna mast is higher than five feet.

Antenna Amplifier: The antenna amplifier should be located in a weatherproof structure such as a pent house, fan room, service hall, or basement. The amplifier operates on a 105 to 125 volts, 50-60 cycle alternating current. An a-c outlet fused for 15 amperes should be furnished at this location. The a-c outlet should have facilities for connection of soldering iron, and test equipment, as may be necessary, to maintain the installation. The amplifier is designed for continuous operation and, therefore, automatic control clocks are not necessary. The power consumption of the antenna amplifier does not exceed 180 watts.

Distribution Transformer: This piece of equipment will isolate the transmission lines from each other. A short in any one transmission line will affect only the number of outlets on the specific line which is shorted. The level in the outlets on those lines which are not shorted will remain at approximately their normal operating level.

Receiver Outlet: The television receiver outlet plate mounts on a single gang plate designed to fit the standard single gang outlet box. The single gang outlet box shall be 4" x 4" and have a depth, when used with a standard single gang collar, of not less than 2⅜".

The manufacturer, or distributor, of master antenna systems always has the responsibility of making the necessary engineering surveys to locate the television antennas, provide intermittent supervision as necessary for the electrical contractor, and make final test adjustments of the system. The test and adjustment of systems at this stage of television are too complex to be assigned to any but television engineering personnel; therefore, in the preparation of specifications for an electrical contractor, it is necessary to isolate this responsibility.

While Figure 6 may be used for engineering guidance on antenna system layouts, it is most essential that the architect make use of the manufacturer's representatives (who are normally the local distributors' engineers) for guidance in the preparation of specifications and layouts, as optimum operation can only be assured when the system is custom fitted to the specific building.

To date, the television industry (the Television Broadcasters Association and the Radio Manufacturers Association) has only specified and recommended in its engineering bulletins amplified types of antenna systems. As it is necessary to amplify before dividing signals, it may be said that permanent master antenna system installations which guarantee the performance in accordance with the standards outlined in this article and as established by the industry, can only be realized through the application of an amplified type system.

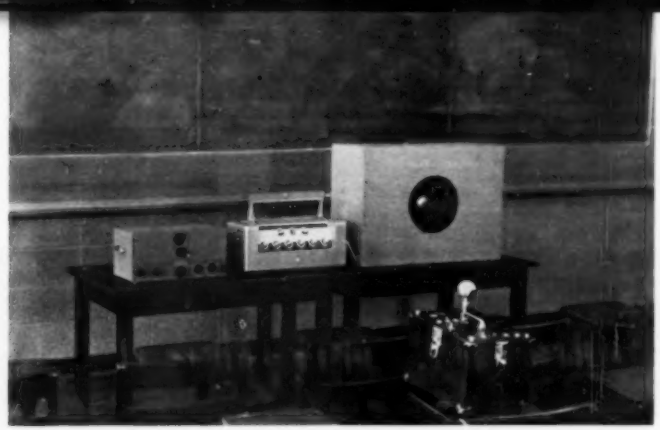


Figure 1: controllable sound source. Equipment shown from left: oscillator (audio frequency), amplifier, and loudspeaker. Sound level meter is located in foreground.

A few people share the erroneous opinion that hollow cinder block partitions provide an effective barrier against sound transmission; however, the experiments described in this report quickly dispel that notion. The authors show how this material can be treated so that it is satisfactory for classroom partitions. Differences of sound transmission that might be due to different paints or blocks made by different manufacturers are now being studied and will be reported on at a later date.

Cinder Block: Sound Transmission

By R. H. ESLING* AND E. R. BASCOM*

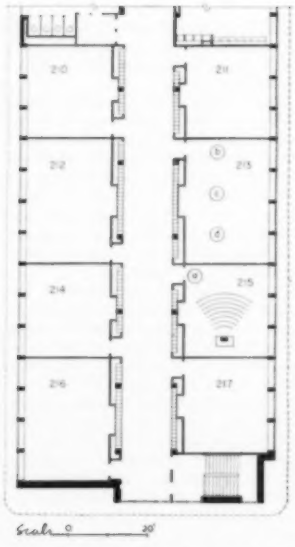


Figure 2: fragmentary second floor plan of classroom building at Wayne University showing positions for sound level measurements. Key: a) source room sound level; b) middle back; c) center; d) middle front.

the project

Hollow cinder block is, in many ways, an excellent material for interior partitions. However, as it readily transmits too much of the sound which impinges upon it, this material is seriously limited in use. The purpose of this project was to determine three aspects of this limiting property: 1) a quantitative measure of the sound transmitted by hollow cinder block tile partitions; 2) the means by which the sound is transmitted through the partition; 3) an effective but relatively inexpensive method of reducing this transmission of sound.

procedure 1: measure of transmission

First, a literature search was made to determine the results of any previous acoustical studies of this material. Acoustical data on cinder block was not to be found.

A controllable source of sound was set up in a classroom in a new building at Wayne University. The existing partitions between adjacent rooms of this building were casein painted, four-inch, hollow cinder block tile walls. Different frequencies of sound at known levels were produced at the sound source; sound level measurements were then made in the source room and in adjacent rooms at a time when the background noise level was below the lower limit of instrument sensitivity.

As shown in Figure 1, the source of test sounds was a 12 inch loudspeaker mounted in a baffle set up on the lecturer's table. An audio frequency oscillator coupled through an amplifier to the loudspeaker produced impulses of known frequencies. The amplifier controlled the sound levels produced by the loudspeaker. Sound levels established in the source room were measured at the rear of the room, near the door to the corridor. Being rather centrally located, Room 215 (see Figure 2) was first used as a source room and a known frequency of sound at a known level was established. The average sound level in Room 213 was then determined by noting the average of three to six readings taken at three positions: center back, center, and center front (see Figure 2). As voice sounds are primarily confronted in classrooms, and as the strongest frequencies in the voice are those below 1000 cycles per second,[1] frequencies of 100, 200, 300, 400, 500, and 1000 cycles per second were employed as test sound frequencies. Four sound levels, 50, 60, 70, and 80 decibels established in Room 215 represent the sound level of a moderately voiced lecturer and increase to a level above that of a loud lecturer. One additional test was made at a level of 40 decibels (a quiet lecturer) for a frequency of 250 cycles per second. During the progress of the tests, one set of readings was made in Room 217 and one set of readings made in Room 211.

procedure 2: means of transmission

Sound can enter a room by three methods:[2] 1) it may be transmitted through the building frame as a structural vibration; 2) it may be transmitted by a wall or floor panel vibrating as a diaphram; 3) it may be air-borne, entering through doors, cracks around doors, windows, ventilating ducts, and so on. The first

*Physics Department, Wayne University, Detroit, Michigan.

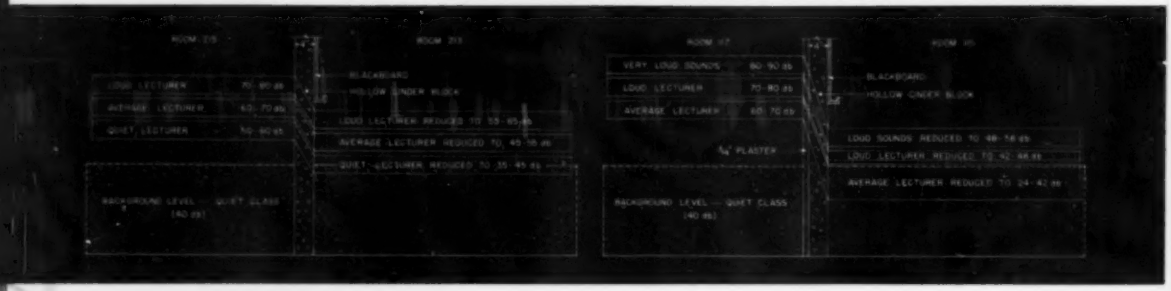

ROOM 215
ROOM 213
LOUD LECTURER 70-90 db
AVERAGE LECTURER 60-70 db
QUIET LECTURER 50-60 db
BLACKBOARD
HOLLOW CINDER BLOCK
LOUD LECTURER REDUCED TO 55-65 db
AVERAGE LECTURER REDUCED TO 45-55 db
QUIET LECTURER REDUCED TO 35-45 db
BACKGROUND LEVEL — QUIET CLASS (40 db)

Figure 3: transmission of sounds through unplastered hollow cinder block partition.

ROOM 117
ROOM 115
VERY LOUD SOUNDS 80-90 db
LOUD LECTURER 70-80 db
AVERAGE LECTURER 60-70 db
¾" PLASTER
BLACKBOARD
HOLLOW CINDER BLOCK
LOUD SOUNDS REDUCED TO 48-58 db
LOUD LECTURER REDUCED TO 42-48 db
AVERAGE LECTURER REDUCED TO 34-42 db
BACKGROUND LEVEL — QUIET CLASS (40 db)

Figure 4: transmission of sound through freshly plastered hollow cinder block partition.

means of sound transmission into a room is illustrated by the sharp clicking of a heel against the floor or the rapping and scratching of chalk on a blackboard. These impact sounds are transmitted as structural vibrations. The principal problem here, however, was not with impact sounds as the use of insulation as a means to eliminate them is well discussed in the National Bureau of Standards BMS17.[3] To test the degree of vibration experienced by the cinder block partition, a sensitive crystal brush vibration pick-up was coupled to an oscilloscope. While high energy sound impinged against the partition, the vibration pick-up was held firmly against the wall: the oscilloscope showed the amplitude of vibration of the partition.

Since these tests showed negligible motion of the partition as a diaphram, it appeared that the sound must be transmitted as air-borne sound and that the cinder block partition must be highly porous. Literature at hand indicated that hollow tile made of porous material transmitted sound to a degree which was well within our results.[4] To test for porosity, a cinder block with its bottom sealed with paraffin was set in a shallow tray. Water was then poured into the two end channels. Since the coarseness of the porosity was unknown, water containing a wetting agent was used in one of the channels. Ten seconds after the liquid was poured into the end channels, seepage was evident even in front of the center channel into which no liquid had been poured.

procedure 3: reduction of sound transmission

Positive proof of the high degree of porosity which is characteristic of the cinder block tile indicated that the open channels through the tile should be blocked by some rigid material. The material used to seal the porous tile must not lend itself to diaphram-like vibration in the opening of the pore. A reference to literature showed that sound reduction by the porous tile mentioned in reference four had been markedly improved by application of a heavy coat of gypsum plaster.[5] A heavy coat of plaster was then applied to one side of one of the cinder block partitions in the classroom building. Metal lath was fastened to the cinder block partition and approximately ¾ inch of plaster was applied, pressing it through the lath so that it made direct contact with the cinder block partition. To save labor costs a first floor room was used for this test.

Using the equipment and method described in Procedure 1, sound transmission tests were made after the plaster had been applied. The sound source was set up in Room 117 and transmitted sound levels determined in the adjacent Room 115. For these tests only, frequencies of 250 and 500 cycles per second were used. Primary sound levels of 90, 80, 70, and 60 decibels were successively established.

Conversation tests were also made. While constantly watching a sound level meter to maintain control of sound intensity, a lecturer spoke in Room 117 at a level held between 60 and 70 decibels. Listeners in Room 115 tried to hear and understand the lecture. These tests were repeated with the lecturer in Room 115 and the listeners in Room 117.

In an effort to see whether the drying of the plaster had any significant effect on the sound-reducing properties of the plastered partition, the foregoing tests were repeated a month and a half later. A frequency of 250 cycles per second was adopted as average voice frequency and primary sound levels of 80, 70, and 60 decibels were established in Room 117. Corresponding sound levels were determined in Room 115.

results

The average sound level reductions determined from tests on the painted, hollow, cinder block partition separating Room 215 and 213 are shown in Figure 3. To all indications, the sound was transmitted as air-borne sound through the pores of the tile. The porosity tests indicated such a great degree of porosity that the wetting agent was of no advantage. Ordinary tap water flowed through

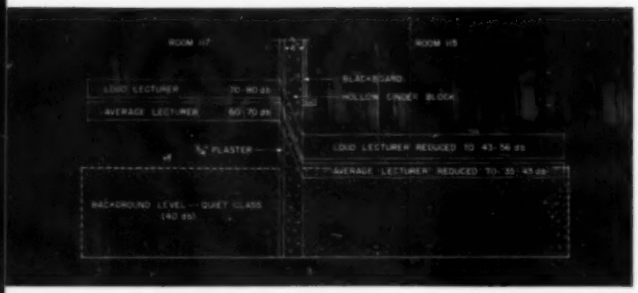


Figure 5: transmission of sound through plastered hollow cinder block partition one and one-half months after plastering.

the coarse pores as readily as the water containing the wetting agent.

Figure 4 shows the sound level reductions from tests on a freshly plastered partition separating Rooms 117 and 115.

After the plaster had dried, tests were again conducted on this partition. A comparison of Figures 4 and 5 shows a slight decrease in the sound reducing ability of the plastered panel after drying.

For the unplastered hollow cinder block partition, the average reduction of sound level for all sounds was only 12.5 decibels. This would indicate that a lecturer whose voice has a level of 65 decibels would be heard at a level of 52 or 53 decibels in an adjoining room. Such a level of transmitted sound is within the range of ordinary conversation.

Plastering the wall brought about a significant reduction in the level of transmitted sound. Results of the conversation tests made while the plaster was still fresh (average reduction 33 decibels) showed that the small amount of sound transmitted was unintelligible.

discussion

The final decision as to whether the plastered cinder block partition provided a satisfactory reduction of sound level between classrooms depended, of course, on what maximum level of background noise was tolerable. Knudsen[6] recommends a background sound level of 24 decibels as the greatest which should be permitted in a classroom. Tests under actual classroom conditions, however, indicated that coughing, rustling clothing and paper, and the shuffling feet of several students in a room brought about an average background noise level of 40 decibels. From Figure 5 it will be noted that after the plaster had dried, the average reduction of the sound level for all levels tested was 26 decibels. This signifies that a sound of 65 decibels in a given room would be heard at only 39 decibels in an adjoining room and would be lost in the background noise of an average class.

The unintelligibility of sounds transmitted through the plastered partition was quite in keeping with the theoretical aspects of sound reduction and of hearing.[7] The intelligibility of speech depends upon the high frequencies of sound found in the consonants. These high frequencies are attenuated more readily than the lower frequencies; therefore, what sound was transmitted by the plaster partition became merely an unintelligible rumble. When a student is trying to concentrate, understandable speech, even at a low sound level, is often more distracting than a meaningless rumble at a higher level. The change in sound reducing properties of the plastered wall, as the plaster dried, was undoubtedly due to the reduction of mass when the excess water evaporated. A gypsum manufacturer's representative has said that approximately 33 percent of the water used in most plaster is excess and eventually evaporates. In general, the addition of mass to a wall improves the ability of the partition to act as a sound reducing agent. Plaster on cinder block, therefore, serves a dual purpose; it forms a rigid seal in the pores of the tile and also adds mass to the wall. The National Bureau of Standards BMS17 indicates that plastering both sides of porous tile further increases the sound reducing properties of the partition.

references

1. Knudsen, Vern O., *Architectural Acoustics*, page 96, John Wiley and Sons, 1932.
2. National Bureau of Standards, Building Materials and Structures Report 17, page 3.
3. Ibid., page 6.
4. Supplement of BMS17, page 3, panel 173c.
5. Ibid., panels 173a and 173b.
6. See reference No. 1, page 330.
7. Wood, A. B., *A Textbook of Sound*, page 211, G. Bell and Sons, Ltd., 1946.
8. Private communication.
9. See reference No. 4, cf. panels 173a and 173b.

p/a products

rubber-metallic liquid foils protect asphalt, composition roofs

On the west coast, liquid foils of a rubber-metallic type containing aluminum or copper have been developed and successfully employed to stop oxidation and depreciation of asphalt and composition roofing. Known as Permalume, this product has proven to be an effective barrier against moisture and weather attacks; in hot weather, the aluminum type provides a desirable reflective insulation. These liquid foils may also be applied to metal, concrete, fiberboard, canvas, and other surfaces to stop rust, to waterproof, and to give weather protection. Both spray and brush types are available and may be used with conventional equipment; they set quickly and can be walked over after about an hour in warm weather.

Permalume is a mineral rubber hydrocarbon which is permanently thermoplastic and elastic. It contains no oils or asphalts which tend to dry out, oxidize, or deteriorate when exposed to heat, light, or the elements. It is also resistant to alkali and will not support mold or fungus.

Asphalt roofs become brittle and carbonized when the oils which keep them flexible and waterproof are lost to the sun. Permalume, however, prevents depreciation for years and keeps roofs in their original condition. When applied to a smooth asphalt, it will cover approximately 200 square feet with a four mil thickness.

Large applications of this material have been made at the University of Oregon, Oregon Technical Institute, numerous commercial and industrial buildings, and it is also considered equally suitable for residential construction. In Monterey, Mexico, this product was successfully used directly over a large concrete slab deck roof of an industrial building.

The manufacturer now has distributors on both the west and the east coast. Grems Manufacturing Company, P. O. Box 322, Klamath Falls, Oregon.

new-type refrigerator introduced

A new type of refrigerator has been introduced to the American market. Operating on the heat-absorbing principle, this new unit has no motor, compressor, or moving mechanism of any sort. The only activating element is a small, cylindrical 95-watt electrical heating device, which will operate on either 110-115 volt a-c of any cycle or on 32 or 12 volt d-c.

Known as the Astral, the operation of this refrigerator is noiseless and vibrationless. Three inches of glass fiber batt insulation separate the exterior cabinet which is made of porcelain-enameled heavy gage steel and the interior which is aluminum finished in baked on enamel. A 50 degree temperature differential is maintained between room and storage compartment.

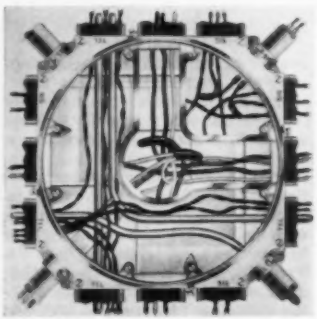
The Astral measures slightly less than 2' x 2' x 2' and weighs approximately 60 pounds. Its compactness and light weight make it suitable for offices, hospitals, small homes, apartments, motels, and many other locations where large capacity is not required.

These units have been marketed in Great Britain for some time and more than 100,000 are reported to be in use there. Astral Industries, Incorporated, Rockleigh, New Jersey.

announce new series of shallow pan-type junction boxes

Designed for one, two, or three "Nepcoduct" underfloor wiring systems, a new series of three shallow pan-type junction boxes is being marketed by the National Electric Products Corporation. Suitable for installation with shallow concrete slabs, open-web steel joist construction, steel decking, or cellular floors, these boxes occupy only 2½" of top floor construction. A principal advantage of this series is that all ducts enter on one level and the interior design places the low potential wiring area so that it is always at the top level of the box. This feature will assure easier working-in of large telephone cables. Further, the new boxes are provided with adjusting screws for raising, lowering, and levelling. Hand holes readily make available practically the entire inside area of the box and all the wiring services.

To assure positive mechanical and electrical contacts, as required by the National Electrical Code, the ducts and conduits are fastened to these boxes by tangent bearing set screws. Galvanized steel tops are standard; however, tops for marble or terrazzo floor finishes are also available. National Electric Products Corporation, Chamber of Commerce Building, Pittsburgh 19, Pa.



Above: this junction box occupies only 2½" of top floor construction.

non-technical personnel can easily operate two pound sound level meter

This miniature sound level meter weighing slightly over two pounds will quickly and accurately measure indoor and outdoor acoustics, machinery noise, and hearing requirements. Only of flashlight size, its simple controls permit operation by non-technical personnel. Sub-miniature tubes and hearing aid batteries are part of the rugged but compact design which meet all specifications established by the American Standards Association for sound level meters.

Called Type 410-A meter, it covers the range from 34 to 140 decibels above the standard A.S.A. weighting characteristics which duplicate the ear response at various loudness levels. Batteries may be easily obtained and when operated with this meter have a normal operating life of 50 hours. Optional accessories include carrying case, extension cable with input adaptor, and mounting tripod. Vibration pickups and integrators are available for measurement of displacements, velocities, and accelerations in the audio frequency range. Hermon Hosmer Scott, Incorporated, 385 Putnam Avenue, Cambridge 39, Mass.

this month's products

air and temperature control

Winterway Oil-Fired Winter Air Conditioner: basement type, completely automatic, designed to meet heating requirements of small and medium-sized homes at extremely low cost. Universal connection provided in flue assembly, permitting either right or left outlet. Easy assembly and installation, readily adaptable to gas. American Radiator & Standard Sanitary Corp., Bessemer Bldg., Pittsburgh 22, Pa.

Uni-Flo Model EF Grille: for use with ventilating or air-conditioning systems. Diffusion fins give turbulent action to supply air, minimizing drafts and producing rapid temperature equalization. Ruggedly constructed to withstand severe abuse; available in wide range of sizes. Barber-Colman Co., Rockford, Ill.

Carrier 38B Weathermaker: compact packaged summer cooling and heating air conditioner, controlled by same thermostat in each season. Unit enclosed in single, thermally and sound insulated cabinet. Manufactured in three capacities: 3 hp cooling and 110,000-150,000 Btu heating; 5 hp cooling and 110,000-150,000 Btu heating; 5 hp cooling and 165,000-200,000 Btu heating. Carrier Corp., Syracuse, N. Y.

Attifan Dual Ventilator: for installation over kitchen stove; duct extends up through attic. fan operation draws stale air from kitchen and attic simultaneously, venting it to outside. Motor and fan concealed, only grille in view. Kool Air Engineering Co., San Bernardino, Calif.

Evaporative Condensers: compact units for easy handling and moving through small doors; newly engineered design, with low air velocities over copper coil surfaces, does away with need for eliminators and their maintenance. Available in 3 sizes: 3½, 6, and 12 ton units. McQuay, Inc., 1600 Broadway, N.E., Minneapolis 13, Minn.

Comfort Thermostat: for use with domestic heating systems using any kind of fuel. Operates on time pattern and not directly dependent upon temperature variations; will maintain constant heat flow at proper rate to balance heat loss; lag and over-shoot eliminated. Readily substituted for existing thermostats; rewiring unnecessary. Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Remington Air Pilot: electric room ventilator. Can be instantly adjusted to provide fresh air and exhaust simultaneously or to circulate room air exclusively; filter removes dust and pollen. Operates on 110v a-c, without special wiring. Remington Corp., Air Conditioning Div., Cortland, N. Y.

Oil-Fired Furnaces: new line of forced air winter air conditioning systems, ranging in size from 119,000 Btu to 245,000 Btu input; heavy 10-gage steel heat exchanger designed so that top, sides, and bottom are primary heating surfaces. All models equipped with stainless steel humidifiers. Steel Products Engineering Co., Combustioneer Div., Springfield, Ohio.

Giant Fans: for stores, offices, and factories; capable of circulating more than twice as much air as previous models of same size by means of five especially designed injector rings and sharp-angled plastic blades. Air jet vane that increases blowers' penetration power 200 to 300 percent is optional accessory. Westinghouse Electric Corp., E. Springfield, Mass.

construction

Fiber Glass Expansion Joint: nonextruding expansion joint material, composed of glass fibers and asphalt, developed to meet required demands of preformed, nonextruding joint filler for concrete. Will not rot or decompose, absorbs less than half of water volume permitted by specifications. Keystone Asphalt Products Co., 43 E. Ohio St., Chicago 11, Ill.

doors and windows

folDoor: plastic fabric covered "accordion" folding door for closets, alcoves, partitions, etc., in stock and made-to-order sizes. Each door provided with cornice to conceal top edge of closure and overhead track. In wide choice of colors. Holcomb & Hoke Mfg. Co., Inc., 1545 Van Buren St., Indianapolis 7, Ind.

Emergency Exit Lock: for use on exit doors in buildings and projects where important documents and materials are kept, as well as in hotels, restaurants, department stores, etc. Lock may be opened by authorized persons with key; in case of emergency, by anyone who breaks glass which actuates unlocking device and rings alarm upon opening of door. Installation simple and inexpensive. Hunter Lock Co., 1109 S. Robertson Blvd., Los Angeles 35, Calif.

Aluminum Screen Frame: for framing aluminum or wire cloth screening. Readily assembled from framing sections measuring 15/16" wide by 7/16" thick; trim cover sections, and cast aluminum covers; no screws needed. Mullion assemblies also available for use as required in assembling frames for very large windows. Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, Calif.

Knockdown Aluminum Garage Door: modern horizontal lines, receding type, made for either 8' x 7' or 9' x 7' openings. Easily assembled by bolts and nuts through predrilled holes. Insulation for heat loss prevention in heated garages available. R. L. Taylor, Inc., 12480 Evergreen, Detroit 28, Mich.

"36" Yale Nightlatch: redesigned in construction and appearance; improved mechanism makes possible for latch to be retracted, and remain so, with flick of lever; new action no longer requires use of two hands. Smooth brass finish. Yale & Towne Mfg. Co., Stamford, Conn.

electrical equipment, lighting

Weatherproof Ventilated LO-X Duct: first bus duct to receive Underwriters' Laboratories approval for outdoor installation. Bus bars effectively sealed against any entrance of moisture by wrappings of vinyl Scotch electrical tape over standard wrapping of varnished cambric and directly on both ends of bus bars for about one inch. Casing and all steel parts zinc plated, coated with Anozinc, and finished in enamel. BullDog Electric Products Co., 7610 Jos Campau, Detroit 32, Mich.

PAR-56: 300w narrow beam spot lamp of approximately 100,000 c.p., for applications requiring spot of high intensity for longer throws from ceilings and outdoor uses where a narrow beam is needed. General Electric Co., Nela Park, Cleveland 12, Ohio.

Dual Control Unit: provides two separate circuit-protective units in one corrosion-proofed steel enclosure; one set of magnetic breakers for main disconnection of all service equipment and one set of magnetic breakers used as separate system for control of water pumps, fire-fighting equipment, outdoor lighting, or any other special circuits. Over-all height 15", width 6¾", depth 3½". Heinemann Electric Co., Trenton, N. J.

Hosmer 3-Way Swing Lamp: first lamp to combine versatility of gooseneck and swing arm. Two-jointed arm permits lamp to be rotated into any position, without tightening of wing nuts or similar devices; also adjustable in height from five to seven ft. Available in copper, brushed brass, or brushed cadmium finish, with shades in cloth or aluminum acorn spin. Hosmer Lamps, 1422 Grant Ave., San Francisco, Calif.

The Light Tree: portable lighting fixture, consisting of brushed aluminum or brass stem extending upward for 10 ft., with holes for wires at intervals to give easy adjustment to 4 swivel 75w R-30 reflector lamps. With or without 20" utility table in natural birch and walnut. Unit suitable for home, office, or showroom, providing over-all indirect illumination, mood lighting, or highlighting. Middletown Mfg. Co., Middletown, N. Y.

Industrial Lighting Unit No. 2099: low cost, full sized unit using two T-12 40w fluorescent lamps, with 13" wide reflector and 5" hi-efficiency lamp spacing. Designed for chain suspension, rigid stem, or rod mounting. Reflector finished in glossy white baked enamel. Mitchell Mfg. Co., 2525 Clybourn Ave., Chicago 14, Ill.

Trimspots: six new incandescent single and twin spotlight units, created to match and give greater flexibility to company's series of shielded fluorescent Trimline fixtures. Each Trimspot equipped with 150w PAR-38 spot lamps which can be rotated in 360° arc and tilted up to angle of about 20°. Sylvania Electric Products, Inc., 500 Fifth Ave., New York, N. Y.

materials of installation

Tube-Tite Staples: made from copper with steel core for strength, designed to fasten copper or brass tubing used in radiant heating and in hot and cold water service line installation. In three sizes, to fit ⅜", ½", or ¾" nominal tubing. E. H. Titchener & Co., 67 Clinton St., Binghamton, N. Y.

finishers and protectors

Pigmented Wall Primer-Sealer: for use on interior walls of plaster, masonry, composition wallboard, also as undercoat in refinishing work. New chemical process said to provide firm adhesion and controlled penetration, thus making single coat of sealer sufficient for even highly porous surfaces. Manufactured in non-blued white, can be tinted with toner colors, oil colors, or with finishing paint. Devoe & Raynolds Co., Inc., 44 St. & 1st Ave., New York, N. Y.

sanitation, water supply, drainage

Weatherall Outside Wall Faucet: with valve inside house, eliminating bother of shutting off water in basement before winter to prevent freezing of line. Existing faucets easily replaced with new product; new installations can be made through wall or basement window. Brass head and valve, copper tubing; spout threaded to fit standard garden hose. In two sizes. Rockford Brass Works, Inc., Rockford, Ill.

specialized equipment

Alfco Carbon Dioxide Fire Extinguishing System: designed for Class B and C risks, and for Class A risks in closed vaults. System, consisting of battery of carbon dioxide gas-filled cylinders and mechanical equipment, sounds warning when fire hits, stops motors, closes windows, shuts off fans, closes doors, and puts out fire. Easily installed, can be located adjacent to risk or remote from it. American-La France-Foamite Corp., Elmira, N. Y.

Ozone Producing Lamp Bulb: new 4w lamp will dispel undesirable odors by giving off just barely noticeable concentrations of ozone. Operates on household current, used with ballast in simple fixture which allows free escape of ozone but shields eyes from ultraviolet energy generated by lamp. Many uses, including heating, ventilating, and air-conditioning equipment, clothes dryers, etc. General Electric Co., Nela Park, Cleveland 12, Ohio.

Kelvinator Home Freezers: new line, chest type, providing more interior capacity within cabinets that are smaller than similar models of conventional design, in 6, 9, 12, and 12 cu. ft. capacities. No projecting handles or hinges; insulation sealed in with moisture-proof compound to insure longer life and maximum operating efficiency. Nash-Kelvinator Corp., Kelvinator Div., Detroit 32, Mich.

surfacing materials

"Tap-Down" Metal Trim: for plastic laminate coverings that have backing or underlayment ⅛" thick. Trim forms permanent, lock-grip seal along edges of material; grooves retain waterproof cement and effect watertight joint for counter and sink-top installations. Available in stick lengths as well as in preformed sink-well frames. B & T Metals Co., 425 W. Town St., Columbus, Ohio.

p/a

MANUFACTURERS' LITERATURE

★ *Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

AIR AND TEMPERATURE CONTROL

1-39. Grille Selector Slide Rule. Made of heavy cardboard, sliding rule provides rapid sizing of ventilating and air-conditioning grilles; sizes based on noise level, air volume, throw, ceiling height. Table of maximum allowable noise levels for different installations, operating instructions. Barber-Colman Co.

1-40. Blend-Air (A-957 A), 6-p. illus. folder on automatic forced air heating system employing supply ducts only 3⅛" in diameter; for new or old houses, with or without basements. Advantages, method of operation, diagrams, accessories. Coleman Co., Inc.

1-41. Automatic Kitchen Ventilators, AIA 30-D-1 (33), 4-p. illus. brochure describing outside wall ventilators for keeping kitchens free from steam, grease, cooking odors. Models, installation diagrams, construction features. Fasco Industries, Inc.

★ **1-42. Sarco Steam Hook-Ups** (1500), revised, 64-p. manual containing technical data on steam hook-ups for steam traps, air vents, and industrial temperature controls. Information assembled under following general headings: Industrial Steam Traps, Building Heating, Industrial Temperature Control, Water Blending. Charts, tables, diagrams. Sarco Co., Inc. (50 cents per copy; make check or money order payable to Sarco Co., Inc.)

1-43. Trade-Wind Clipper Blowers, AIA 30-D-1 (620), 4-p. folder and instruction sheet (690) on ventilators for ceiling installation in small rooms. Advantages, types, dimensions, auxiliary equipment, prices. Trade-Wind Motorfans, Inc.

1-44. The Van-Packer Chimney, 4-p. illus. booklet describing precast, lightweight chimney, tile lined, insulated, and reinforced, ready for installation. Construction drawing, advantages, typical installations. Van-Packer Corp.

1-45. Turbine Driven Unit Heaters (TH-2), 8-p. booklet. Technical and general data given on turbine driven unit heater using same steam for both heat and power, eliminating electricity for power. Capacities, mounting heights and coverage, dimensions and weights, piping details. L. J. Wing Mfg. Co.

CONSTRUCTION

Handbook of products for reinforced concrete construction (steel forms, reinforcing bars and spirals, metal lath ceiling construction, etc.). Descriptions, photos, construction details, technical data, specifications. Also two booklets on steel forms and steel roof deck, respectively. Types, standard widths and depths, installation details. Ceco Steel Products Corp.:

3-29. Handbook of Products for Reinforced Concrete Construction (4002A)
3-30. Meyer Steelforms, AIA 4-E-6 (4001-C)
3-31. Steel Roof Deck, AIA 13-G (3003)

3-32. 15 Steps to Better Concrete Construction, AIA 7, 12-p. illus. booklet describing properties and uses of construction materials engineered for coating, water-resistance, sealing, hardening, and repair work on concrete and masonry. Specifications, typical installations. Sika Chemical Corp.

3-33. Steel and Aluminum Building Panels (BP-1), 40-p. catalog illustrating various types of building panel units, steel deck, acoustic roofing, reinforcing floor forms. Fire resistance ratings, detail drawings, selection tables, specifications, loading tables, details. Detroit Steel Products Co.

3-34. Truscon Metal Lath Products (B-500), 8-p. illus. bulletin describing different forms of metal lath and accessories, including corner beads, casings, partition studs, screeds, etc. Uses, packing information. Truscon Steel Co.

DOORS AND WINDOWS

4-48. Astrup Awning Equipment, AIA 35-P-2, 8-p. booklet giving descriptions of all types of awning equipment for store fronts, such as awning fabrics, operating mechanisms, equipment for aluminum roller awnings, etc. Construction of products, specifications. Astrup Co.

4-49. Raynor Commercial and Industrial Doors, AIA 16-D (503), 4-p. illus. booklet. Two heavy duty models shown, utilizing especially constructed gradual hinges to assure weather-tight seal and easy operation. Jamb construction, accessories. Raynor Mfg. Co.

Two portfolios containing data sheets, one on screening for all types and makes of windows; the other, on wood and steel casement window units in modular sizes. Specifications. Rolscreen Co.:

4-50. Rolscreen Details, AIA 35-P-1
4-51. Casement Units, AIA 35-P-1

4-52. Thorn Products for the Home, 12-p. illus. bulletin presenting standard types of double hung windows, screens and storm sash, basement windows, and residence casements, all in aluminum or steel. Dimensions, construction details, installation details. J. S. Thorn Co.

4-53. Building Products, AIA 16-A, 38-p. manual providing technical data on stock standard and non-stock standard hollow metal doors and frames. Construction features, specifications, types and sizes, dimensions; further data on insulated hollow metal doors, pre-assembled steel frames, fire-rated door and frame combination, and sliding bi-pass door and frame. Virginia Metal Products Corp.

ELECTRICAL EQUIPMENT, LIGHTING

5-32. Incandescent Unified Lighting, AIA 31F2 (550), 46-p. illus. catalog describing line of incandescent lighting equipment and germicidal equipment. Types, lighting design data, specifications, cross section details, light distribution curves, coefficient of utilization tables, spacing and mounting height ratios, index. Art Metal Co.

5-33. Electro Slimliner Series, AIA 31-a-6a (SL1100), 4-p. bulletin illustrating line of 2, 3, and 4 lamp fluorescent fixtures available in open, louver bottom, and glass bottom types. Photometric data, dimensions. Electro Mfg. Corp.

5-34. Condensed Lighting Guide (L50), 16-p. illus. catalog covering line of fluorescent and slimline ceiling luminaires, incandescent down lights, spots, etc. Descriptions, dimensions, cross sections, accessories. Garden City Plating & Mfg. Co.

5-35. Underfloor Electrical Distribution Systems, AIA 31C62 (606), 36-p. illus. catalog containing specifications and typical layout for underfloor wiring systems. Descriptions of parts and accessories, typical installations, numerical index. National Electric Products Corp.

Two 4-p. folders describing all-steel, louvered fluorescent fixtures. Suggested mounting arrangements, coefficients of utilization, specifications. Smithcraft Lighting Division.

5-36. Mercury (540)
5-37. Eye-Q by Smithcraft (530A)

5-38. Radiastat and Autrastat Dimmers, AIA 31-F-17 (76), 16-p. illus. bulletin on lighting controls for theaters, churches, restaurants, auditoriums, etc. Construction, sizes and capacities, assembly diagrams, installation and maintenance data, wiring diagram. Ward Leonard Electric Co.

FINISHERS AND PROTECTORS

6-9. Catalog No. 501-R, 4-p. bulletin describing various weather-resistant, waterproof, and corrosion-resistant coatings, paints, and asphalt plastic cement for roofing. Uses, specification and purchase factors. Coopers Creek Chemical Corp.

6-10. Cuprinol (A-34A), 4-p. booklet on

wood preservative for on-the-job application against rot, fungi, and termites. Advantages, types available, where and how to use, specifications. Cuprinol Division.

6-11. The Endur System for Modern Schools, 6-p. circular and color chart illustrating emulsified rubber-based paints for classroom interiors, including resurfacer for old, worn chalkboards and nonslip floor paint. General recommendations, specifications. Endur Paint Co.

6-12. Architectural Specifications, AIA 25-B-3 (987-5002), 4-p. booklet containing specifications for wood-finishing with pre-sealer, undercoat, and natural finish materials for use on plywood and hardwood. U. S. Plywood Corp.

INSULATION (THERMAL, ACOUSTIC)

Booklet describing number of structural insulation products (sheathing, lath, interior finish, rock wool, etc.). Types and sizes, specifications, details, application photos. Other booklet offers suggested applications of insulating interior finishes for modern interiors. Descriptions of products, ceiling patterns, photos, drawings, variations of metal and wood moldings, application data. Celotex Corp.:

9-26. Structural Insulation (1950)
9-27. Ideas For Planned Modern Interiors

INTERIOR FURNISHINGS

9-28. Laverne Originals, 24-p. catalog illustrating collection of wallpaper, fabrics, tables, chairs, wood screens, all of contemporary design. Price list, terms and conditions of sale. Laverne Originals.

9-29. How to Install Vinatred, 16-p. booklet giving step-by-step directions for installation of vinyl plastic carpeting. Recommended do's and don't's. Southbridge Plastics, Inc.

SANITATION, WATER SUPPLY, DRAINAGE

19-46. Stainless Steel Welding Fittings (52W), 8-p. price list of steel welding fittings, such as elbows, return bends, stub ends, tees, etc. Pipe thicknesses, types of stainless steel. Cooper Alloy Foundry Co.

Two brochures on condensation pumps, and another on vacuum pumps. Construction, operation, selection of unit, capacities, specifications, assembly diagrams. C. A. Dunham Co.:

19-47. Condensation Pumps (File 1430)
19-48. Condensation Pumps (File 1410)
19-49. Vacuum Pumps (File 4C-2-8)

Three booklets on water softening and other water conditioning equipment. Advantages, types, uses, drawings, photos. Elgin Softener Corp.:

19-50. Water Conditioning (509A)
19-51. Zeolite Water Softeners (608)
19-52. Complete Water Conditioning Facilities (610)

19-53. Leakproof Tub Hanger, 4-p. folder illustrating application of galvanized steel hangers, used to build bath tubs securely into wall construction. Advantages, typical installations, specifications. William B. Lucke, Inc.

SPECIALIZED EQUIPMENT

19-54. "Savealife" Fire Alarm System, single instruction sheet showing installation of inexpensive, easily installed fire alarm system for use in homes, apartments, schools, rooming houses, etc.; kit consists of 12 patented thermostats, 2 bells, 110-10v a-c transformer, and 150 ft. plastic coated electric wiring, for average 6-room house. F. Cecil Brown Co.

19-55. In-And-Out Registers (R-1), 8-p. illus. bulletin on line of registers for hospitals and general commercial uses. Types of register systems, name plate styles, wiring directions, isometric drawings, technical data. Cannon Mfg. Corp., Cannon Electric Development Co. Div.

19-56. Physical Fitness Apparatus (GG 1), 32-p. illus. catalog offering line of athletic equipment for gymnasiums, camps, armories, health clubs, home use. Descriptions of parallel bars, side horses, vaulting bucks, climbing ropes and poles, massage tables, ladders, traveling rings, rowing machines, etc. General information. Fred Medart Products, Inc.

19-57. Drafting Templates (50), 8-p. illus. catalog describing 30 types of templates for use of engineers, architects, draftsmen, and designers. Prices, photos. Rapidesign, Inc.

SURFACING MATERIALS

19-58. Asphalt Tile Color Classification Chart, AIA 23-D, guide sheet designed to clarify various manufacturers' color designations, and showing commercial equivalents of manufacturers' color lines which give same color tone or effect. Asphalt Tile Institute.

19-59. Douglas Fir Plywood (1950), 20-p. booklet giving various plywood grades, uses in construction, properties, advantages, finishing data. Douglas Fir Plywood Assn.

19-60. Zourite (48031), 4-p. booklet on aluminum facing material, available in porcelain enamel finishes of various colors; applied to exterior or interior surfaces without need for major structural alterations. Construction details, identification table, method of application. Kawneer Co.

19-61. "Quarry Tile" of Shale Slabs, 4-p. booklet describing hard burned vitreous shale slabs in natural shades of red for wall and flooring. Also quarry tile shapes and roofing tile. Advantages, sizes, typical applications. Ludowici-Celadon Co.

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5-37	5-38	6-9	6-10	6-11	6-12	9-26	9-27
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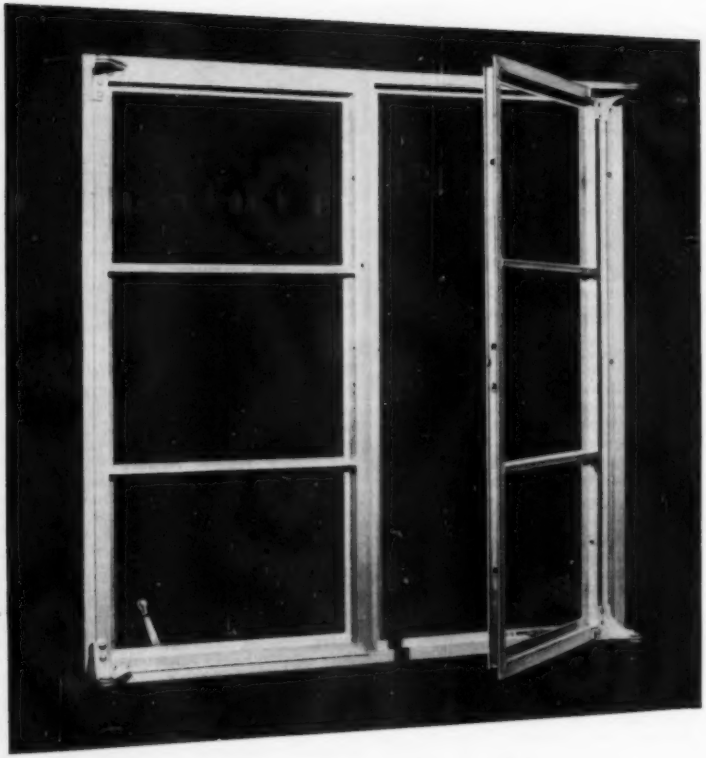

Window shopping stops here...

The most intensive of all "window shopping"—that of the architect and builder—must stop at the sight of Reynolds Aluminum Casements. Their superiority in design and especially in *finish* is outstanding. Their flash-welded corners assure maximum rigidity and weathertightness. Their roto-operation is smooth and dependable. And of course they have the basic advantages exclusive to aluminum windows: rustproof permanence with no need for protective painting, narrow frames of neutral tone to harmonize with any concept.

Reynolds supplies residential casement, fixed and picture windows in all combinations, standard and western types...also Reynolds Aluminum Screens to fit these and all metal casement windows. *Stop right here* and write for complete descriptive literature in A.I.A. file form. **Reynolds Metals Company,** Building Products Section, 2014 South Ninth Street, Louisville 1, Ky. Offices in 32 principal cities.

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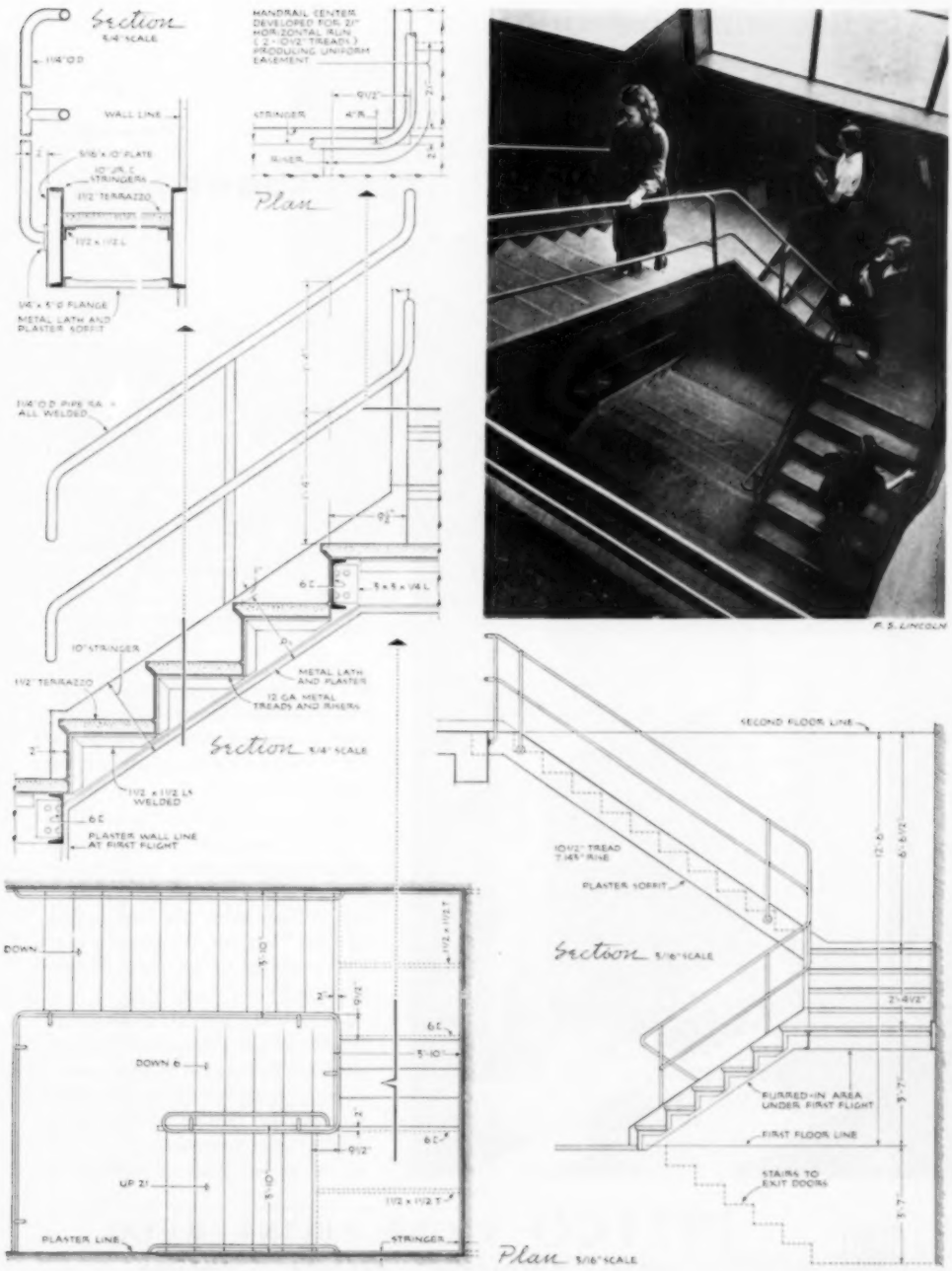
"...as manufactured by Reynolds Metals Company...made of solid extruded aluminum shapes of not less than ⅛" in thickness ...special alloy of not less than 17,000 pounds tensile strength psi...Frames shall be Zee sections 1" in depth and ⅞" in cross section, and will provide continuous double contact...All corners shall be electrically flash welded...Satin type finish and protective lacquer coating..."

REYNOLDS ALUMINUM RESIDENTIAL CASEMENT FIXED AND PICTURE WINDOWS

IF YOU SEE RUST YOU KNOW IT'S NOT ALUMINUM

REYNOLDS *Lifetime* ALUMINUM BUILDING PRODUCTS

REYNOLDS ALUMINUM



F. S. LINCOLN

BEECHER HIGH SCHOOL, Flint, Michigan

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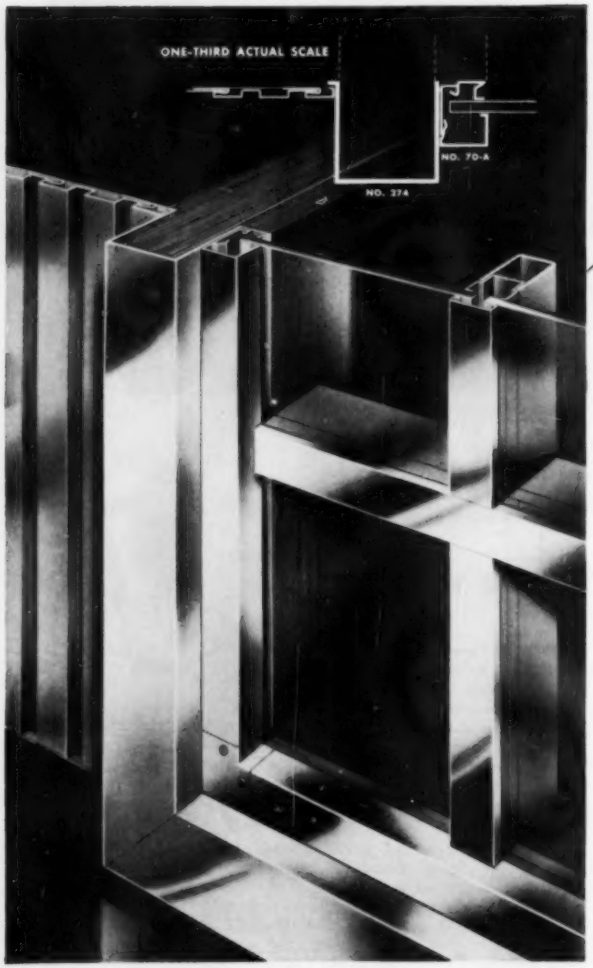
In line with modern design . . .

another *Projecting Frame*

IN PITTCO STORE FRONT METAL



● This assembly answers the need of some store front designs for a modern projecting frame to satisfy certain style requirements, and to give toe room and protection to the bulkhead.

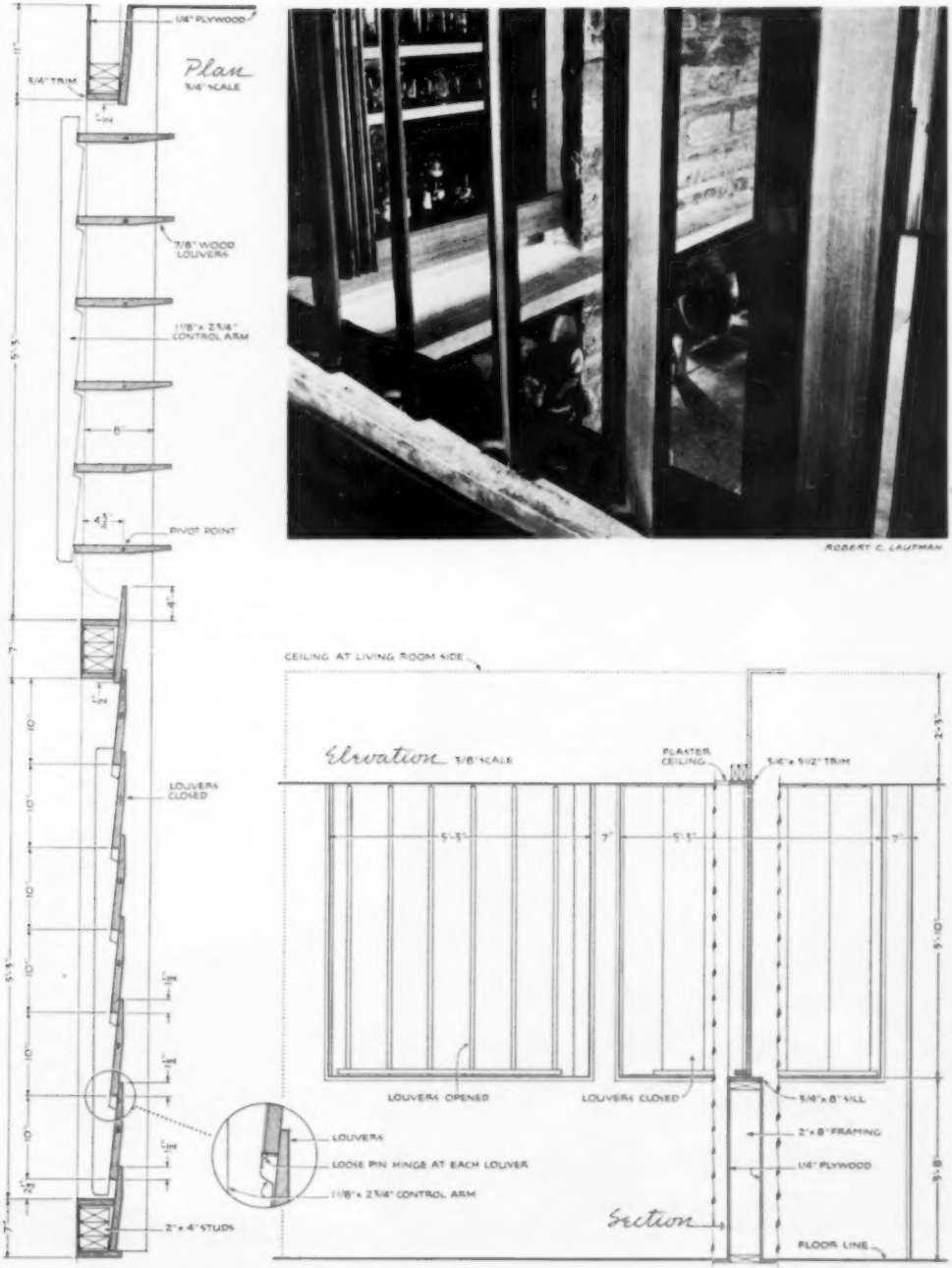
The frame is formed by Pittco De Luxe Standard Moulding #274. This extruded Alumilite moulding may be combined with any sash in the Pittco line, but it is shown here in conjunction with Premier Sash 70-A and No. 28 Bar. The pilaster is faced with mouldings in the Pittco Premier Moulding Kit.

It is possible to work out a wide variety of sash, sill and moulding combinations, using both De Luxe and Premier standard members and the Pittco Premier Moulding Kit. Why not examine the Pittco Metal Sample Case? A representative from our nearest office will gladly call and display it.

PITTCO STORE FRONT METAL

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY



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Here are some of the famous buildings for which prominent architects have specified PC Foamglas Insulation.

In countless big office buildings, department stores, schools, hospitals, textile mills and industrial plants, this cellular glass material has proved its insulating efficiency in walls and floors, roofs and ceilings, for years on end.

The very nature of its structure makes Foamglas practically immune to many elements that impair other insulating materials, insures your clients of long-lasting satisfaction. Continued freedom from excessive maintenance, repair and replacement costs makes PC Foamglas a truly economical insulating material.

These are the main reasons why so many architects have specified PC Foamglas insulation on so many and varied jobs, for their most exacting clients. Keep them in mind whenever you specify structural insulation.

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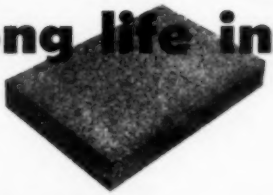


Before you specify insulation— check these advantages of Foamglas

FOAMGLAS is entirely inorganic. It is composed of cellular glass, hence constitutes an effective retardant of heat travel, which is the main function of any insulating material.

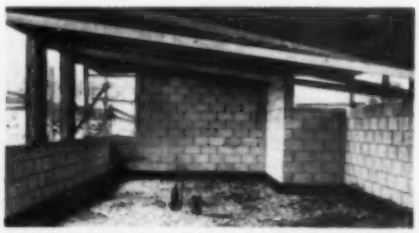
Foamglas comes in strong, rigid blocks, is light in weight, easy to handle and stays in place. On large areas of flat and pitched roofs, Foamglas forms a firm, level base for roofing felts, requires no additional structural reinforcement to support its weight. In exterior core walls and interior partitions Foamglas supports its own weight, becomes an integral part of the structure. Under cover-floors Foamglas supports far greater than customary loads without fear of crushing or cracking.

Foamglas is true glass, hence has extremely high resistance to the deteriorating effects of moisture, vapor, acid atmospheres and other destructive elements. It is noncombustible, verminproof and odorless. In fact, when properly installed, PC Foamglas *retains* its original insulating effectiveness.

When you are selecting an insulating material, remember that your clients will get an exceptionally high degree of insulating satisfaction from the long-lasting effectiveness and the continued economy of PC Foamglas.

More and more architects are including radiant heating in new sidewalks—and in replacement jobs—in northern latitudes. The resultant freedom from accumulations of snow and ice promotes public safety, removes a maintenance problem. In the sidewalk pictured here—in front of the famed Duquesne Club in Pittsburgh—slabs of PC Foamglas, two inches thick, were laid beneath the pipes to retard heat loss into the supporting structure. The Foamglas was laid dry and heating pipes were installed, with a finish concrete slab. Circulating hot water maintains a surface temperature well above the melting point.

Here you see strong, rigid blocks of PC Foamglas Insulation being laid on the flat concrete roof deck of the South Avondale School, Cincinnati, Ohio. Foamglas lays up quickly, is easily hoisted and handled by minimum crews. Its long, maintenance-free service has won Foamglas insulation wide preference among roofing contractors. Architects: Potter, Tyler & Martin, Cincinnati, Ohio.



In this basementless house, PC Foamglas is applied to the inside surface of the foundation wall. Later, a concrete floor slab will be poured. This type of construction has proved an effective preventative of heat losses. Insulation makes the home more comfortable to live in summer and winter, saves fuel cost during the heating season and lightens the burden of air-conditioning equipment. Architects: Willis & Lillian Leenhouts, Milwaukee, Wisconsin.

GET COMPLETE INFORMATION . . . To provide your clients long-lasting satisfaction with every insulating job, make sure that you have the fullest information on the physical properties of PC Foamglas and on the latest installation procedure for each application. The wide and varied field experience of our insulating specialists is at your disposal. Just drop us a line and they will be glad to consult with you, without obligation.

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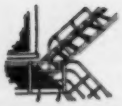

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technical press

By JOHN RANNELLS

weather and the building industry

The Building Research Advisory Board of the National Research Council of the National Academy of Sciences devoted its first "research correlation conference" to the above subject last January 11 and 12 "because weather and climate affect research in virtually all fields of building technology." The proceedings are published by the B.R.A.B. (in pamphlet form, paper-bound, 159 pp., $3.50) with the aid of a grant from *House Beautiful* Magazine to the B.R.A.B. It was pretty much *House Beautiful's* show, as several of the speakers acknowledged with appreciation—the outgrowth of their Climate Control project, which was reviewed here last February. But *House Beautiful* took a modest back seat at the conference and let the research people carry the ball.

The conference might better have been called "Weather Science and Building Materials." The scientists were well represented, also the heating and ventilating engineers and those interested in building materials but the builders were conspicuous by their rarity. The architects were pretty scarce too, except for the Federal Housing people.

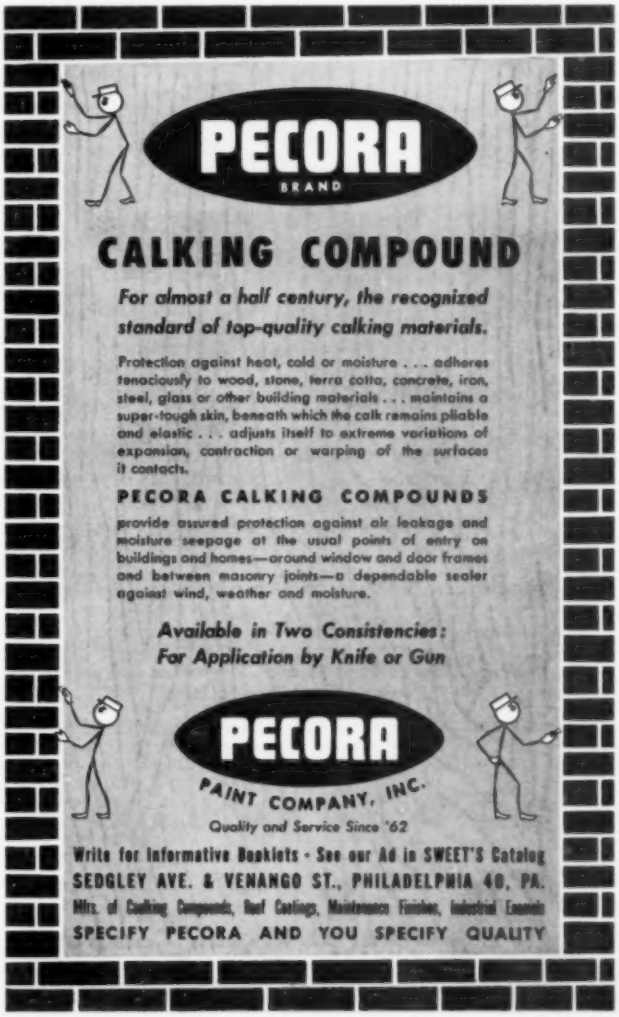
It was a mighty constructive conference, anyhow, and the building industry can take its hearings from the material that was developed here. The proceedings give a very clear picture of the role of the weather data in the development of building technology and the reciprocal role of building technology in setting up requirements for processing the great undigested mass of weather data. The building people want answers; the weather people can't give answers until the questions are put. It is a bit startling to learn at this point that so little of the vast accumulation of records is in shape to give "yes" or "no" answers. The start has been made, though, and as more and more people in the building industry get to know the score we can expect a hastening development of an architecture suited to its environment.

●

Dr. Paul Siple's paper "Climatic Criteria for Building Construction" reviews the development of the analytic charts which are the particular contribution of the Climatic Control project. When he began to study the problem, he conceived of a map of climatic housing zones in order that a house could be designed for each zone. But it soon appeared that there would be hundreds of zones or else simplified larger zones based primarily on temperature and precipitation which would be unreliable because of differences in sunshine, wind, humidity, etc. People in the building field weren't any help. All agreed that a building design which is ideal for one climate should be modified if it's to suit another climate somewhat different as to temperature, winds, rain, etc., but no one could offer specific advice on the amounts of change which are significant.

After a year's research and experimentation with maps they changed the whole approach and decided to focus on the climate of fifteen population centers and work out a design for each. The

(Continued on page 104)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technical press

(Continued from page 103)

maps showing variation around each center are what is left of the original climatic zone idea. They are unique maps and they show very clearly the differences within each region but the original question is still wide open: "How much difference does it take (in temperature, precipitation, sunshine) to be significant?"

The facts of weather and climate and Weather Bureau records are covered in Siple's paper and several others. In the past the climatic conditions considered as pertinent for the building industry were just the mean values of a few elements, such as prevailing wind, mean temperature, relative humidity or derivatives of temperature such as "degree days" and extreme conditions of temperature, precipitation, etc. Now the emphasis is turning toward the living experience of weather throughout the day—not just prevailing conditions but conditions at the time we are most concerned about them. There is enormous untapped wealth of weather data available in the archives of the Weather Bureau, which has just begun to be evaluated for the building industry through the *House Beautiful* project.

One of the objectives of this conference is to bring about more pertinent presentation of data by the Bureau and more processing of the existing data for the benefit of the building industry. The weather stations are located generally for the best prediction of weather and may not be particularly representative of the local conditions. Local variations from "official" records which are due to topography or bodies of water, or vegetation, or pavement, and buildings constitute a whole branch of weather science, "Microclimatology," which has been largely beyond the scope of the Weather Bureau reports. The Bureau has tried to arouse interest in the subject without much success. They published a detailed treatise for Washington, D. C., but there was not enough interest to justify preparing similar data for other cities. They tried more than ten years ago, through a survey and questionnaire, to get information from business and industry as to just what new things were needed in climatology for the decade of 1940-1950. They didn't get many responses.

It takes a lot more than a realization of obvious need to get such things moving. It takes a lot of "push," and pushing is not among the Weather Bureau's functions. They *are* ready to respond to all reasonable requirements. Much of the past records have been put on I.B.M. cards so that specific questions can be answered by tabulating. This has become standard practice in aviation climatology and has been utilized by the American Society of Heating and Ventilating Engineers. (The Bureau does not do any special processing.) Now the punched card system is used for all current climatological work and is the beginning of a fluid source that can be utilized in the developing theory and practice of weather science.

The weather scientist is essential for utilization of weather data. The data has to be interpreted to give answers that industry can use and only a trained man can evaluate the data in terms of the requirements. The rest of us, architects especially, should learn what laymen can about the technical side of the subject so that we can collaborate effectively with the new specialist in our productive team.

●

There are several papers on building materials research (roofing, insulation, test houses) on the general subject of "Climate and the Structure." These are all applied rather than basic scientific research—good material but not unusual and by no means covering the whole field as do the papers on weather science.

(Continued on page 106)

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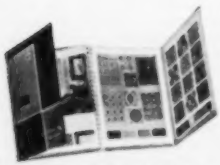

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technical press

(Continued from page 104)

Under the subject of "Climate and Design of Buildings," a paper by Dr. L. P. Herrington, "Human Factors in Planning for Climate Control," and another by James M. Fitch, "Buildings Designed for Climate Control," brought the conference to focus on the application of theory. (Some of Dr. Herrington's work was reviewed here in May.)

Few people realize the importance of environmental conditions on productive work although we know that we feel mighty good in the ideal indoor climate of spring and fall when the air outside is about 60F, with sunny days, so that buildings have a radiation temperature several degrees higher than air temperature and there is considerable but varying air movement through open windows.

"Ideal" temperatures for some industrial activities are proved by the increase of accident rate above or below these temperatures—it is about 60F for coal mining, about 67F for light assembly work in factories. "*If we were in a position* (says Dr. Herrington) *to grade and evaluate all human activity as positively as we can measure average accident and error experience, we would probably be astonished at the price in wasted energy that our society, our business organizations, and our families pay for work under unfavorable conditions.*"

Fitch's paper stresses means of working with climatic conditions to achieve comfort. Arrangement of planting, thermal capacity of buildings, sun control gadgets, all can be manipulated to make the most of local conditions. Here are two sets of figures from a previous paper which illustrate the effect of materials on temperature, the first having to do with air temperatures on the surface, the second with roof and attic temperatures:

1. Air temperature taken under standard meteorological conditions.77F
Concrete walk in the sun.....95F
Dark slate roof in the sun.....110F
Short grass in the sun.....88F
Leaves of oak tree.....81F
Soil in shade of big oak tree.....79F
2. Outside temperature under standard meteorological conditions.....88F
Dark asbestos shingle roof in the sun 122F
Temperature just below uninsulated roof 108F
Temperature just below insulated roof 97F
Air temperature in fan-ventilated insulated attic 90F

With a little intelligent site planning and forethought we can make the most of such conditions. It is certainly better and cheaper than throwing all the burden on air-conditioning equipment.

●

There is a good section on air conditioning and its relation to the weather data. Here is a field where the practitioners are alert to the scientific developments and we can expect broad application of research, resulting in increased comfort, economically achieved.

●

The whole conference was a good example of cross-fertilization of ideas in different fields. Here was a knowledgeable group of men in different fields, feeling their way toward constructive collaboration, each stating his own specialty in terms that the others could understand, realizing, for the first time perhaps that specialties grow in effect as they work with other specialties and related fields of work. It might seem discouraging that so little of a final nature has been accomplished but it is anything but discouraging when we realize that we have only begun to develop architecture for comfort and that great things are yet to be done by new men coming up.

Manhattan Room, Hotel New Yorker, N. Y. Bar front covered with Kalistron of special design in black and two shades of gold. Special green Kalistron used on banquettes, side chairs. Table tops of Macarta Tenwood. Designer, Walter M. Ballard Corp., N. Y.

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p/a REVIEWS

BOOKS

Contemporary Structure in Architecture. *Leonard Michaels, M.A., A.R.I.B.A. Reinhold Publishing Corporation, 330 West 42 St., New York 18, N. Y. 1950. 229 pp., illus. $8.50*

As a result of what must have been a tremendous research undertaking, this author has completed a refreshingly thorough and invaluable study. For the first time is presented in one book all of the many variations of structural methods available to the present-day architect. In addition to containing a full analysis and discussion of contemporary structure, this volume includes 259 definitive pictures collected from many different countries and from all parts of the world; some 75 drawings further supplement the text.

This publication grew out of a desire on the author's part to clarify the seemingly haphazard relationship which he feels exists between structure and architectural design. It is his conviction that "with the knowledge of technics and science developed far beyond the mastery of any one man, the architect has become essentially a co-ordinator of specialists. If he is to retain his creative role, this co-ordination must be made active and not passive . . . The architect must therefore aim at knowing sufficient of the principles of the specialized subject on which his design depends to enable him to lead and not to follow, to demand and not merely to acquiesce."

Michaels has divided his analysis into two major divisions: 1) Contemporary Structure; 2) Structure in Architectural Design. In the first category, he has presented the many elements of the skeleton frame employed throughout

(Continued on page 110)

Quarry Hill Apartments, Leeds, England. Erection of complete welded eight-story frame as one unit.

Construction view of the box-frame structure in a London apartment shows how the wall slabs can become cantilevers if required.

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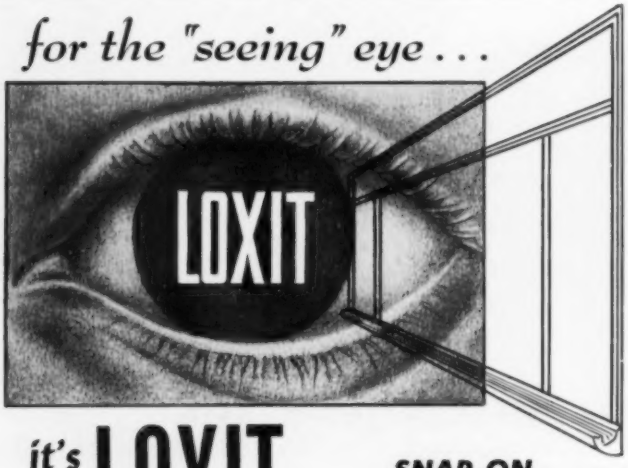

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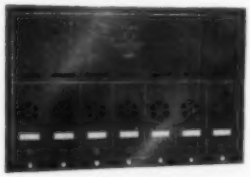

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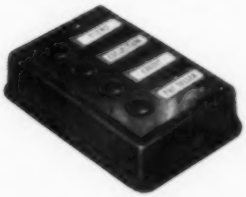

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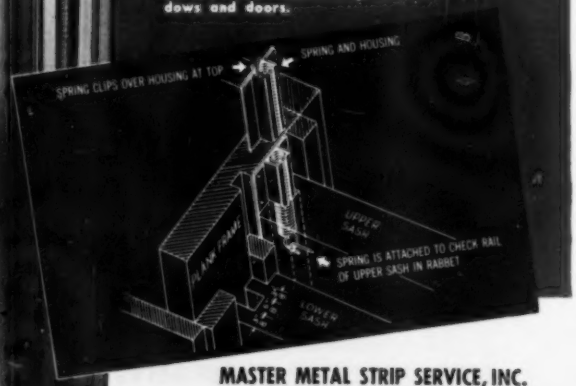
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p/a REVIEWS

(Continued from page 108)

the world today, as they are found in jointing, multi-story framing, single-story framing, and horizontal infilling. From this review, he logically proceeds to an analyzation of building which proceeds beyond the structural frame: the structural slab and the structural shell. In the second division of this study, the author considers structure in architectural design and shows the relationships to contemporary structure of plan, section, massing, structural form, and expression. In an appendix he demonstrates the positive structural influence of such materials as steel, reinforced concrete, timber, and aluminum alloys.

This text is no ordinary one. The author does not attempt to offer his reader a close mathematical appraisal, but rather presents detailed descriptions of the principles and functions of contemporary structure. Although his selected buildings are exceptionally well documented, particularly from a point of view of architectural design and structural significance, he has considered them all more or less contemporary and has not thought it necessary to date them. However, practically all of his examples have been built within the 20th Century and the vast majority of them within the last two decades.

Eric Mendelsohn, of the University of California, in his foreword comments, "to our University Departments and students the study of this book is imperative, even to those who believe in and rely upon their structural vision and organic instinct, this book is enlightening." Also, Professor R. A. Cordingley, of the University of Manchester, England, has written "the book should assist designers, not excepting professional students, to refresh their knowledge of the true values of the respective systems and to choose appropriately with the maximum expedition and without danger of sacrificing logic to current, evanescent fashion."

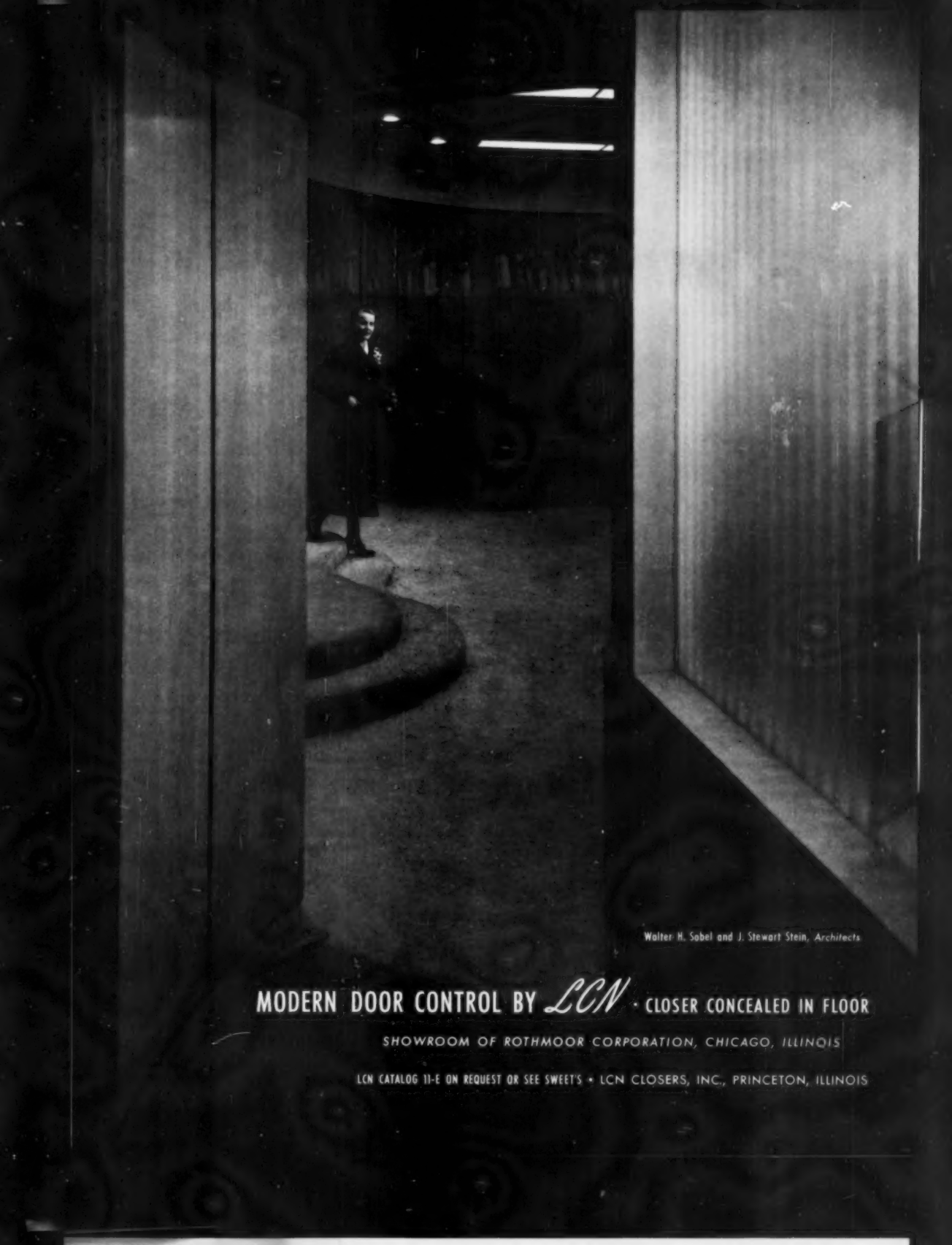
B. H. H.

CHAPTER FROM PAST

Tea Burning Town *by Joseph S. Sickler. Abelard Press Inc., 381 Fourth Ave., New York, N. Y., 1950. 125 pages, illus. $5*

Happily by-passed in the surge of "development" of rural New Jersey was the historical little town of Greenwich, whose houses afford the quaint illus-

(Continued on page 112)



Walter H. Sobel and J. Stewart Stein, *Architects*

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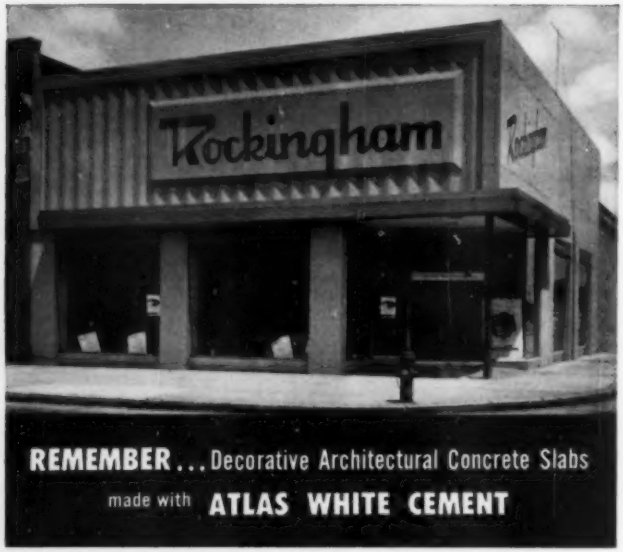

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*Rockingham Clothing Store, Richmond, Va. Slabs made with Atlas White Cement by Economy Cast Stone Co., Richmond.

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p/a REVIEWS

(Continued from page 110)

trations of this chapter of local history compiled by a native son. His account of Colonial village life is presented with charm and considerable attention to the various ancient structures and their owners. C.M.

TREATISE ON HEAT TRANSFER

Heat Transfer. *Volume 1. Max Jakob. John Wiley & Sons, 440 Fourth Ave., New York, N. Y., 750 pp., illus. $12*

A wealth of information concerning the theory and mechanism of heat transfer is gathered together in this comprehensive treatise by a well-recognized author in this field. By its treatment, the book appears intended primarily for advanced students of the subject rather than for practitioners seeking specific solutions to their problems.

The volume contains approximately 750 pages, and divides its treatment into five basic parts, as follows:

- Part A: Basic Equations of Heat Transfer
- Part B: Properties of Matter Significant for Heat Transfer
- Part C: Heat Conduction in Simple Bodies
- Part D: Heat Convection without Change of Phase or Constitution
- Part E: Heat Convection Including Change of Phase

A total of 30 chapters is provided, along with a group of problems numbering several for each of the separate chapters. Radiation and unsteady-state heat conduction are included in the general treatment. A detailed list of symbols, as well as of reference authors, serves well to round out the work.

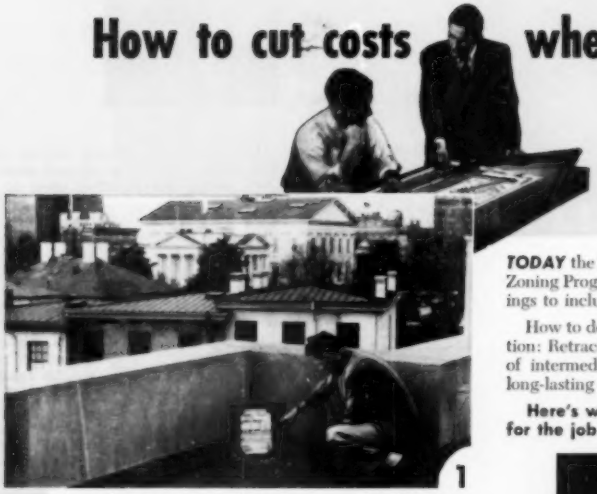
Data in table and chart form are interspersed throughout the chapters to illustrate the expounded principles. No attempt is made, however, to provide comprehensive data of general heat transfer physical properties in a collection of tables at some point in the book. This presumably is left to standard engineering handbooks. It is, however, indicated through titles, that further work of interest to engineers is to come in a succeeding volume, through listing of Part F, "Heat Radiation in Spaces of Simple Configuration," and of Part G, "Selected Fields of Application."

As a source book extensively showing heat transfer relationships stemming from correlations, this work will command a prominent position in the literature of the subject.

CARL F. KAYAN

How to cut costs when drafting revisions are necessary

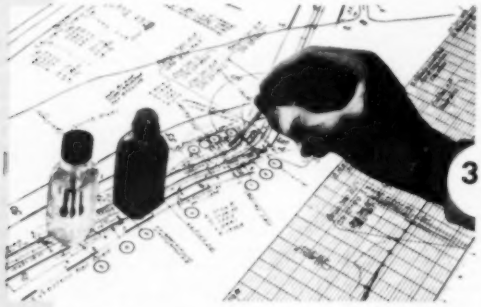
* **A case history based on the experience of the Virginia Department of Highways**



1

Long-lasting intermediates are assured. In a "permanence test" made by the Virginia Dept. of Highways, an Autopositive print was left on a roof top for 36 days. During this time this photographic intermediate was exposed to 200 hours of sunlight . . . 6.88 inches of rain. Despite all of this abuse it was declared "good as new."

Proof, indeed, that "Autopositives" will stand up under less trying, normal conditions . . . will remain intact in the files year after year . . . ready to produce sharp, clean blueprints whenever needed.



3

TODAY the State of Virginia is engaged in a long-range Highway Zoning Program which necessitates changing thousands of drawings to include proposed right of ways.

How to do the job most economically was an important question: Retracing was ruled out – too slow, too expensive. The use of intermediate prints was considered next. They had to be long-lasting . . . easy to make . . . easy to revise.

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Photographic intermediates are produced at a new low cost. When "Autopositive" is used, positive photographic intermediates are produced *directly* without a negative step, without darkroom handling. Maximum efficiency is realized by the Virginia Dept. of Highways because its "Autopositives" are turned out automatically . . . in a continuous blueprint machine, which can be converted readily for Autopositive production.

Drafting revisions are easily made. Unwanted details – such as existing right of ways – are removed quickly from "Autopositives" with corrector fluid. Then the proposed right of ways are drawn in with pencil or ink. Thus, new masters – prepared without costly redrafting – are ready to turn out the blueprints needed for county supervisors and resident engineers.

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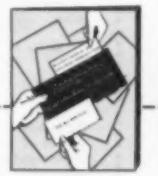

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it's the law

By BERNARD TOMSON

In July it was pointed out here that a construction corporation which extends its business activities into a state other than that in which it is incorporated, must secure a permit to do business in that state. If it does not, it will subject itself to possible criminal penalties and jeopardize the legality or enforceability of its contracts.

That the corporation already has a certificate from its home state, or conducts the larger portion of its business there, are immaterial facts if it steps outside the state to engage in even one project. If it carries its activities into all 48 states, then it becomes subject to the laws of each and must obtain the authority to conduct its enterprise within them. The theory behind what may appear a troublesome and unnecessary duplication of effort rests in the nature of our governmental system. Each state is accorded the rights and privileges of a sovereign and exercises full dominion within its boundaries. Recognition in one state constitutes a grant of privilege by that state to conduct business within its borders, protected by its laws. If the corporation ventures into another state, it subjects itself to a new sovereign from whom it must request similar recognition.

Not all business contacts or transactions in a foreign state require qualification. A corporation will be required to qualify only if it is "doing business" within the state. The rule is broadly stated and what situations it covers depends largely on the facts of the individual case. Generally speaking, the courts have said that an out-of-state corporation must transact a substantial part of its business within the state as distinguished from casual or occasional transactions. A corporation which enters into one contract or transaction, one isolated business act in the state is not said to be "doing business" therein.

The courts have refused, however, to apply this general rule to a contract contemplating a construction project; because, they say, the nature of its performance is such that it extends over an appreciable length of time and thus cannot be described as a casual or occasional transaction. As a matter of practice, a corporation which agrees to perform but a simple construction contract has been held to be "doing business" within the state, so as to require its qualification.

In one case in which a "foreign" corporation undertook a single construction project, the court held that it must qualify for the following reasons:

"The contract contemplated not a single act but a continuing project within this state for at least four months. Plaintiff's agents and employees were here to advise and do the work, employ labor and purchase materials. New obligations were incurred as the need arose. The acts which were done in this state were not a mere incident of plaintiff's corporate existence, but were the performance of the very function for which the corporation was organized. The fact that part of its capital as represented by wages, trucks, tools, etc., was not permanently invested here is of no consequence . . . The rule as to 'isolated transactions' not being within the meaning of the phrase 'doing business' has been limited to single transactions, such as the

(Continued on page 116)

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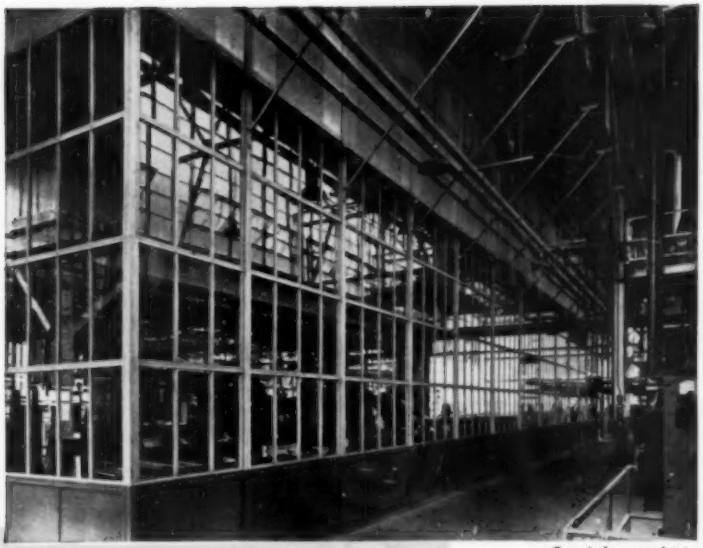

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it's the law

(Continued from page 114)

ordering of one machine, the selling of one machine, the holding of one corporate meeting."

A Florida court has gone so far as to require qualification of a corporation which contracts outside the state to build a railroad within the state, even though it does no part of the actual work itself but employs independent contractors for that purpose.

●

The question of qualification also arises in connection with agreements made by "foreign" corporations to install within the state an article shipped from without. It is held that an incidental agreement to assemble a structure sold by an out-of-state corporation does not constitute "doing business" within the state. On the other hand, if the sale of the article is merely incidental to a contract to perform labor within the state, the activity is within state control and the corporation must qualify to do business.

A contract for the sale, assembling, and erection of certain gas machines for a municipality which involved extensive construction work has been held to be a sale of equipment and apparatus merely incidental to the construction project—hence, a certificate of qualification required. The same view has been taken of a contract for the sale and installation of marble in a building under construction, and the construction of chimneys and plants containing machinery manufactured outside the state.

A contractor who is employed to construct a project for the federal government does not thereby become exempt from state laws requiring qualification. In one case in which a corporation asserted such immunity, the court found that the corporation, in using its own equipment and hiring its own employes for the work, was an independent contractor rather than an employe of the federal government, immune from state regulation. A similar conclusion has been reached in another Supreme Court case involving a contract entered into between the government and a contractor for the construction of a post office building. The court observed:

"While, of course, in a sense the contract is the means by which the United States secures the construction of its post office, certainly the contractor in this independent operation does not share any government immunity."

●

Despite the rigid application of state laws relative to qualification, some contractors may think these consequences

(Continued on page 118)

GOOD BRICKWORK = GOOD DESIGN + GOOD WORKMANSHIP + GOOD MATERIALS

Slushing does not properly fill the voids in the head joints.

When mortar is spotted on only one corner of the brick, slushing seldom fills the voids.

Even when mortar is spotted on both corners of the brick, slushing will not always fill the voids.

"SLUSHING" INVITES LEAKAGE IN BRICKWORK

WE SUGGEST THAT—

Brick should always be so laid that when the brick is shoved into place, the head or cross joint will be *filled solid* with mortar, *without slushing*. If the joints are not completely filled, water may leak through the voids to the inside of the building.

The photos at the left show the voids that often result when slushing is used to "fill" a joint. Even when mortar has first been spotted on both corners of the brick, *slushing cannot be relied upon to fill the voids completely.*

The great plasticity of Brixment enables the bricklayer to throw plenty of mortar onto the brick to be placed — to use plenty of mortar in the bed joint — and still shove the brick easily into position, with excess mortar oozing out all around, and with all voids filled.

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Brixment mortar has greater plasticity, higher water-retaining capacity and bonding quality, greater resistance to freezing and thawing, and freedom from efflorescence. Because of this combination of advantages, Brixment is the leading masonry cement on the market.

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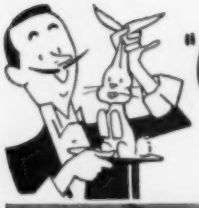

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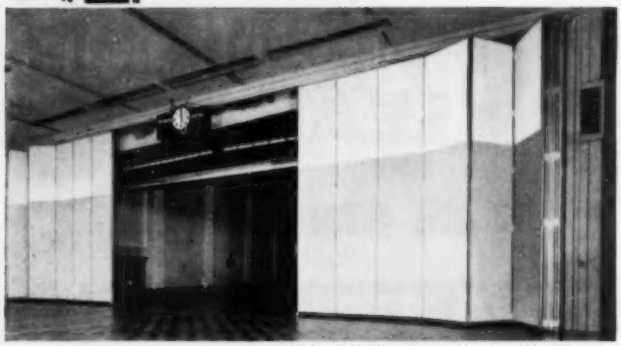

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Just a turn of the switch key and the R-W DeLuxe FoldeR-Way Partition goes into operation silently and swiftly . . . locking and unlocking, opening and closing automatically! Designed specifically for school gymnasiums, auditoriums, stages and other high or wide openings—no matter how large—to be closed against light and sound, electrically operated FoldeR-Way Partitions are the answer to present-day problems of economy in space and expenditure. They transform any large indoor area into two smaller ones—a quick change made entirely without manual effort.

Yes, you turn the switch key and R-W does the rest! DeLuxe FoldeR-Way locks to the floor without floor bolts, keepers, guides, tracks or manually operated sealing strips, pressure-sealing itself to the floor for complete soundproofing. When bi-parting partitions are installed, both halves are synchronized to operate simultaneously—all sections are full-size, equal width doors folding in accordion fashion into jamb or pocket.

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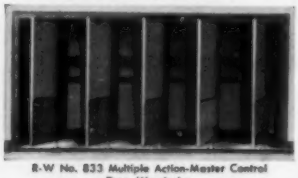

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Richards-Wilcox Classroom Wardrobes are outstandingly popular because they are designed to give maximum space for pupils' wraps without overcrowding—because simplicity of design and installation in wall recess means low cost. Wardrobes are available in Single or Multiple Action-Master Control Door units with mounted slate or cork boards. Each door opening accommodates eight to ten pupils.

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1880 RICHARDS WILCOX R-W 1950

OVER 70 YEARS

it's the law

(Continued from page 116)

can be avoided by suing in the federal courts. The United States Supreme Court has recently held to the contrary, on the ground that when applying state law, a remedy barred in a state court should likewise be barred in a federal court. A different rule, the court said, would be discriminatory. This means that when the law of any state makes an unlicensed corporation's contract unenforceable, that is the law that federal courts will apply—and will apply just as effectively as the state's own courts.

In summary:

1. Most states require that "foreign" corporations "qualify" as a condition to doing business within them.

2. A "foreign" construction company is usually "doing business" within a state when it performs but one construction project.

3. A "foreign" corporation which does business without qualifying may subject itself to criminal penalties. It may further imperil the legality or enforceability of its contracts. Some states will permit enforcement of contracts provided the corporation qualifies before bringing the action.

4. In performing a contract to sell and install equipment which it ships into the state, a corporation may be "doing business" if the sale is incidental to the construction job.

5. A "foreign" corporation cannot evade state requirements to qualify by suing on its contracts in a federal court, since the federal court will apply state law as effectively as a state court.

NOTICES

NEW PRACTICES, PARTNERSHIPS

STANHOPE BLUNT FICKE, Architect, 120 E. 79 St., New York, N. Y.

RUSSEL GUERNE DELAPPE AND ASSOCIATES, Suite A, Hotel Claremont, Berkeley, Calif., research and planning in the fields of construction and community development. In relation to this organization, RUSSELL GUERNE DELAPPE and MITCHELL VAN BOURG, Architects, have formed a partnership for the professional practice of architecture and will share the same offices.

BASSETTI & MORSE, Architects, announce that WENDELL H. LOVETT has been made an associate of the firm.

MARVIN G. PROBST, in affiliation with GRAHAM, ANDERSON, PROBST & WHITE, Architects, Room 772, 612 S. Flower St., Los Angeles, Calif.

No place for Rip Van Winkles

TWENTY years bring changes--changes far greater in our fast-moving world than ever happened in Rip Van Winkle's day.

Americans are awakening to unpalatable facts--that the enterprise system which built our nation and made it strong is being subtly undermined; that advocates of backdoor socialism and communism thrive in our midst; most dangerous of all, that our young people are misinformed on economics.

For example, a recent survey of high school seniors reveals that they estimated that it takes only an $81 investment to provide a job. Actually, as shown by the 1947 census, the 2256 establishments of the iron and steel industry invested $545 per worker that year alone in *new* plant and equipment. Total investment to provide one job runs well above $10,000.

These youth had a similarly distorted picture of profits. They believe shareholders receive 24% of the sales dollar whereas they receive an average of less than 3%.

Misinformed minds are a ready field for imported false philosophies. And it is up to you, a business leader in your community, to take responsibility toward correcting these misunderstandings. The American businessman must not permit himself to be lost in Rip Van Winkle befuddlement.

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out of school

By CARL FEISS

"I have tried too in my time to be a philosopher; but, I don't know how, cheerfulness was always breaking in. Boswell's *Life of Johnson*

Last month I asked our editors to print Dr. Edwin S. Burdell's important statement on the forthcoming A.I.A. Survey on Architectural Education. I hope that there will be some comment on this which may be reviewed in September P/A. By September, a year will have rolled around since the beginning of this column. For the first ten months I squeezed my own grey matter gently to allow the essential juices to fertilize these pages. Now I will turn, from time to time, to the milking of other brains and the creamier words of my superiors. I hope that you will continue to patronize the expanding policy as you have the solo flights of the past; that praise and venom will flavor your opinion; and that I will continue to receive your counsel which, I am happy to say, has been both copious and just.

This month will be devoted to education by planned conversation, better known in and out of school as "the conference method." It is difficult to distinguish in common parlance between conferences, seminars, fora, conventions, institutes, lecture series, meetings, and all the others which, while differentiated in the average lexicon, still remain in the mind of the average man as gab fests with some whoopee on the side.

For many years, the conference method has been an accepted system of get-together for adult educational purposes in architectural circles. Many famous conferences have been held, most of them at universities. Almost every architectural school has sponsored at least one, and many have run series on an annual basis. Usually the subject matter is specific, dealing with practical design or building problems, using an architectural specialty — hospitals, schools, theaters, or the like — as a peg on which to hang the speeches. Occasionally there are philosophic meetings, such as the Princeton one in 1948, so ably reported by our editor* (plugs of this sort are relished by the publisher, too).

●

I thought it would be a good idea to consider here the general value of these meetings and possibly appraise them both in the light of a sponsor and a conferee. To get the sponsor's point of view, I have asked Dr. Wells Bennett, Dean of the School of Architecture and Design, University of Michigan, to give us his reactions to the eight conferences he has run at Ann Arbor with some emphasis on the most recent. He has held a diversified series, interrupted in part by the war. They are listed as follows:

1. Conference on *Coordination in Design With Regard to Education in Architecture and Applied Design*, February 2 and 3, 1940.

2. Conference on *Expansion of Industrial Communities With Regard to Housing and Community Planning*, November 29 and 30, 1940.

*"*Building for Modern Man,*" a symposium edited by Thomas H. Creighton, published by Princeton University Press, $3.50.*

(Continued on page 122)

. . . POINT OF PURCHASE SALES ARE LINKED WITH POINT OF DISPLAY CRAFTSMANSHIP

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Westinghouse

Don't be a FIXTURE PICKER!

This "character" looks worried. He's picking lighting fixtures. But he won't find the answer in a magazine cutout.

What's more, there is no single "cure-all" lighting fixture. You know that, of course, but how many others do? Each luminaire has a different purpose—a different application—and a different economy depending on specific conditions.

Analyzing these conditions takes an expert. You need the services of a lighting engineer.

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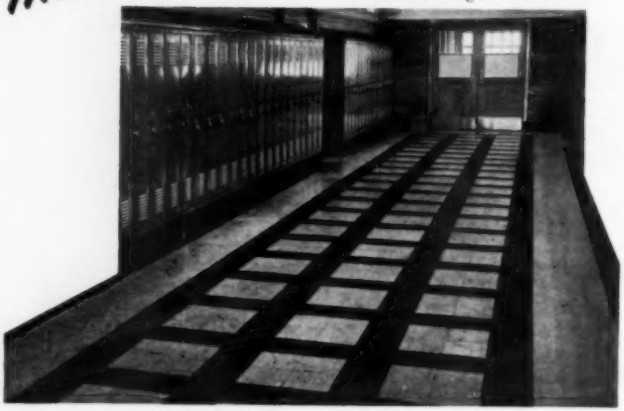
HOOD 1ST CHOICE

again by all 3!

THE ARCHITECT— Mellenbrook, Foley & Scott, Berea, Ohio.

THE GENERAL CONTRACTOR— R. S. Ursprung Co., Hanna Building, Cleveland, Ohio.

THE FLOORING CONTRACTOR— Burk Asphalt Tile Company, Cleveland Heights 18, Ohio.



Again, *new* Hood Asphalt Tile has been chosen, this time for the new Butternut School in North Olmstead, Ohio, and again this superior tile is the choice of the architect, the general contractor and the flooring contractor . . . men who know *better* flooring!

And for good reason! New Hood Asphalt Tile is now available in a choice of 24 sparkling colors with directional marbleization that will meet the requirements of the most exacting decorative plan, above or below grade, and its square, precision-cut edges mean all-important savings on labor and installation costs. More and more every day, Hood is adding to its long list of new installations in which it has been the choice of those whose responsibility is to install longer lasting, more colorful and more economical flooring. Let this choice of those who know be *your* guide on your next job whether it be for remodeling or a new building program for schools, colleges, hospitals, buildings, homes . . . wherever *better* asphalt tile is needed. Your inquiry for further information will be handled promptly.

Be specific . . . specify HOOD ASPHALT TILE

TWO GREAT NAMES — B.F.Goodrich (Asphalt) Hood Rubber Co. (Rubber) Watertown, Mass. — TWO GREAT TILES

out of school

(Continued from page 120)

3. Conference on *Professional Competence in Architectural Training and Practice*, October 16 and 17, 1943.

4. Conference on *Architecture With Regard to Architectural Design and Practice*, February 3 and 4, 1945.

5. Conference on *Hospital Planning*, April 3, 4 and 5, 1947.

6. Conference on *Esthetic Evaluation*, April 2 and 3, 1948.

7. *Mid-Century Report on Design Progress*—Review-Preview April 1 and 2, 1949.

8. Conference on *The Theatre*, April 14 and 15, 1950.

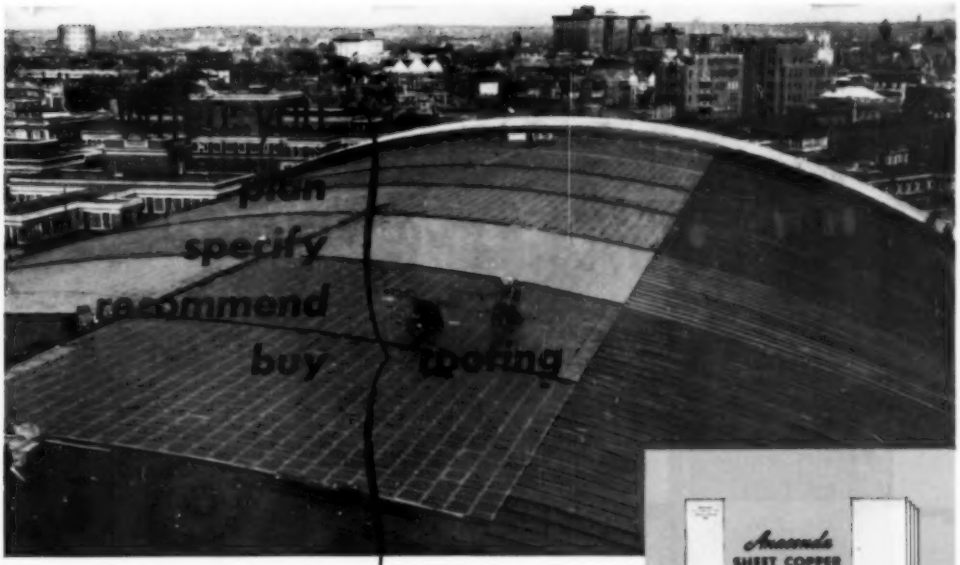
I like what Dean Bennett has to say and suggest that you note the informality and freedom with which the series have been run. The conferees are invited but the meetings are open to an interested public. The whole idea is to provide an individual experience through personal contact and open discussion. While there are technical papers and prepared speeches, one does not feel that there is any attempt to reach finite conclusions, but rather, the conferences have been directed towards a sort of "bringing a subject up to date." Here are Dean Bennett's own words:

●

"In the United States the conference as a device for communication is as ubiquitous as television and the comics. The secret of its success probably lies in its appeal to the gregarious instinct.

"In 1940, at the first Ann Arbor Conference, a small group of practicing architects and architectural educators sat around a table in the Michigan Union. They had met to exchange ideas on the state of architecture. There was a sense of change in the American architectural scene. The practitioners realized that technology had affected more than the appearances of buildings; the elements of professional competence seemed to require extension and definition. 'Neo-classic' and 'moderne' were favorite labels, but architects wondered about these labels and were somewhat irritated by them. Both practitioners and educators used the terms hesitatingly and without satisfaction. The architectural schools were gently simmering over the teaching of design; Frank Lloyd Wright continued to produce new forms; Saarinen and Gropius had challenged the Ecole des Beaux Arts; students were asking embarrassing questions. Behind the spirit of these constructive events there may have been a faint echo of the professional rebellion that had become articulate abroad. Two of the men present were members

(Continued on page 124)



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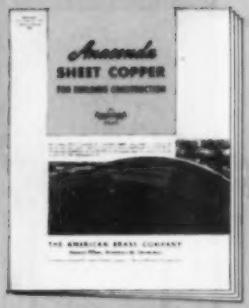

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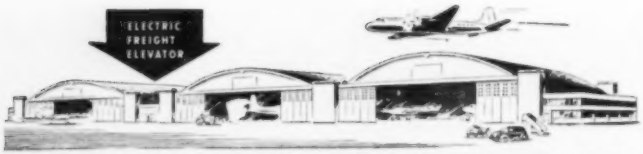

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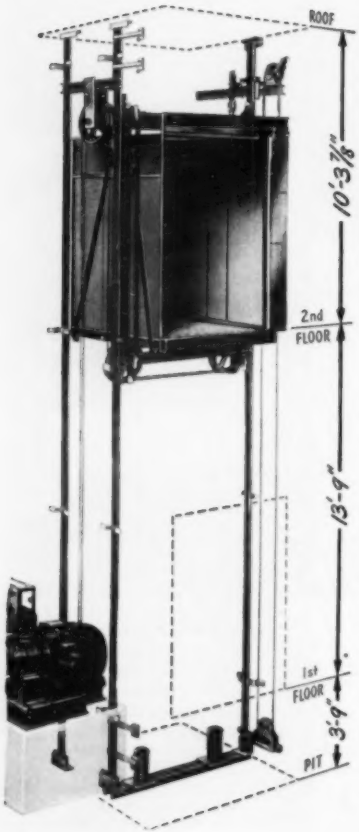

Electric Freight Elevator Requires No Penthouse

Freight elevator service was required for the 2nd floor cafeteria and kitchen in the West Center Lean-to between newly built Hangars 3 and 4 at New York International Airport. Lean-to design set concrete roof beams 10'-3⅞" above the second floor. Hangar steel prevented a break-through for a penthouse. At the 1st floor, water existed approximately 4 feet below the grade level. In all, a tight squeeze for an elevator installation.

But not difficult for a standard Otis Self-Supporting Freight Elevator. As illustrated, the installation stops at the under side of the roof. *No penthouse is required.* Guide rail connections at each floor and the roof take care of light horizontal thrusts. *No overhead supports are required.* The guide rail structure transfers all vertical loads to the bottom of the pit. *No building reinforcing is necessary.*

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Otis ELECTRIC FREIGHT ELEVATORS

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out of school

(Continued from page 122)

of the *Congrès Internationale d'Architectes Moderne.*

"As the discussions began, the determination of issues proved not to be easy. Further, the need for answers did not appear to be too pressing. Thoughtful analysis was needed, and after all the times seemed spacious. At the end it was thought wise to develop the subject more fully at a second conference. The only momentous decision of this first meeting was that in continuing, the Ann Arbor Conference should not organize. It has now met eight times, but it has no committees, presents no reports, passes no resolutions, issues no manifestoes.

"It should not be understood that the successive meetings have been aimless and formless; they have been part of a process since from the first it appeared that group yearning for the statement and clarification of our hopes and fears for contemporary architecture would not be enough. In rambling discussions there was ample philosophic provender on which to feed, but some found it, while digestible, not sufficiently sustaining. On the other hand, even as time went on no great rallying-point emerged. The programs soon became topical and have so continued. Sometimes this group of architects has talked to itself as to measures of competence; the architect in society; or certain current technical developments. Becoming still more objective the Conference has on occasion considered various timely building types in collaboration with specialists. Before the War there was industrial location with the collaboration of the economists, the land planners, and the manufacturers. During the War a conference on hospitals brought to us hospital superintendents and specialists, doctors, and Federal agencies such as Public Health Service and the Veterans Administration. In 1949, Janus-like, we paused to look back to 1900 and forward, somewhat dimly, to 1999. Finally for 1950, the year of *The Cocktail Party* and *The Consul*, some 150 of us gathered to consider The Theatre.

"In spite of general misgivings as to whether there is a future for the theatre as an institution and therefore whether it has any promise for architecture, the topic proved lively and encouraging. When emphasis was placed on educational and municipal developments, rather than on the commercial theatre, the prospects proved to be bright.

"The theatre, it appears, is now going to the home community and is no longer the diversion of the visitor to Broadway or State Street. Here is decentralization in action. Significantly

(Continued on page 126)

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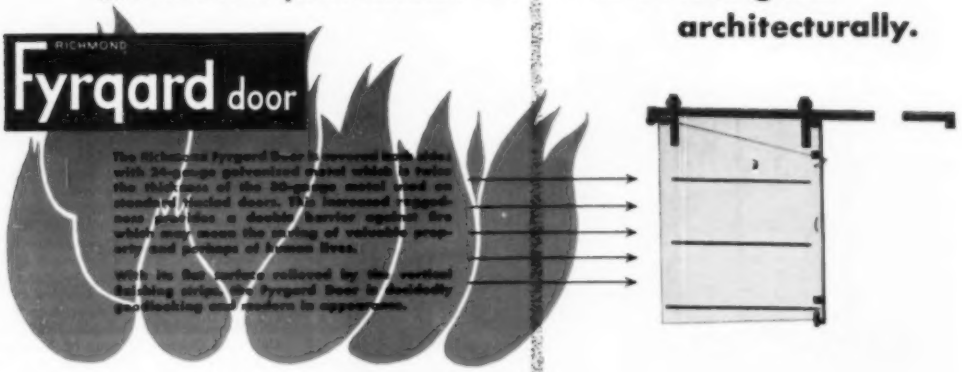

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out of school

(Continued from page 124)

this dispersion to the colleges and high schools, to the municipal park and the barns of the summer resort circuit is our adjustment to the new leisure. Adults of whatever occupation with shorter working hours; high school and college youth with need for release for the energy no longer demanded by the more rugged physical and mental activities of a pre-industrialized age; are the actors and the audience. The dramatic arts as well as organized games, shops for the handcrafts, well stocked fishing and hunting preserves, and far-flung beaches go now to the general public.

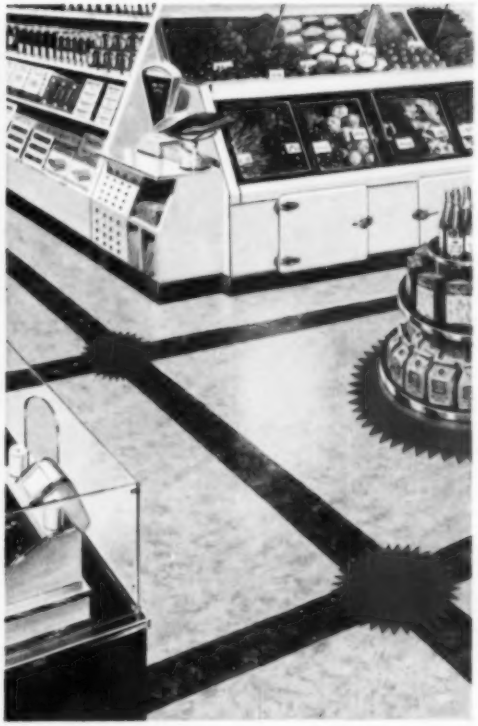
"Most important and most promising is the vitality of these theatre groups as recreation by *participation*. The rush of the relatively few to see a star cast in a smash hit downtown in one city for two years gives place to plays put on by thousands of amateurs for their own satisfaction and for the entertainment of audiences of their kind.

"The program gave emphasis to the producer, the director and the technician. Kenneth Macgowan of Los Angeles, Theodore Fuchs and Lee Mitchell of Northwestern University, Abe Feder of New York, Horace Robinson of Oregon, Gerard Gentile of Cleveland, and Edward Hearn of Los Angeles told us what to do in planning theatres and why we should be doing it. Edward C. Cole and George Izenour of Yale, with Walter Stainton of Cornell, and Jean Rosenthal of New York explained how to do it. William Kapp of Detroit, Joseph Hudnut of Harvard, Frederick J. Kiesler and Douglas Haskell of New York responded for the architects.

"As the program continued, it became clear that the theatre people were having a field day. On points the architects were annihilated, crushed beneath masses of information, delivered with accuracy and *elan*. In cold fact, however, the architects sustained the onslaught with equanimity and emerged all too unruffled. One hopes that the seeming lethargy of the architects was only a mask and that it did not infuriate the theatre people. They could hardly know that the Ann Arbor Conference is never moved to action.

"The reactions of members of the Conference to these meetings are of three types. Some crave or deplore the presentation of technical information, and it is indeed difficult to obtain the perfect blend of subjectivity and science. George Izenour's electronic, mechanized lighting technics for the direction of stage lighting go beyond the normal architect's knowledge of physics. In addition to a scientist's demonstration, however, he was able to impart the vision of new stage lighting

(Continued on page 130)



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PASSENGER AND FREIGHT

out of school

(Continued from page 126)

possibilities. Frederick Kiesler took an equally intriguing point of view, that of design transcending the need for a thinking machine even when presenting *Rossum's Universal Robots.*

"Some of the conferees dislike programs that deal with esthetics. They criticize the haziness of the designer's reasoning and cannot accept it as a defense of intuition. They demand more. Other architects feel that the production of beauty is either an inscrutable phenomenon or an important accessory; if one does one's best with plan and structure, they say, the result will include adequate beauty.

"Some of us throb in sympathy with a conference session when sentiment asserts itself, when reasoning is forgotten while a magnetic personality makes a point that warms our hearts and persuades us that after all, and certainly for this moment, the whole group of meetings has been worthwhile. On the other hand, quite a number of our members walk out on such a session or remain to report adversely in post-meeting comments.

"Given these types of conferees—all of them good—and their reactions—all of them normal and articulate—clearly it is essential that the elements named; technics, esthetics, and sentiment, must be given a play in each Ann Arbor Conference.

"As each of these programs comes to a close one action, as brief as the love life of the queen bee, assures continuity for the Conference. The Chairman states that it is usual to name his successor who will act for the next session. A name is mentioned, presumably by inspiration as it is always unopposed; election is immediate and automatic. The Conference thereupon adjourns.

"This year the mantle fell upon Douglas Haskell of New York. With admirable foresight and unusual courage, the new incumbent called for suggestions for the next meeting. Holmes Perkins proposed 'New Communities' as a timely and challenging subject. A discerning minority voted and our course was set. The Ann Arbor Conference of 1950 expired at 5:00 P.M. on April the fifteenth."

•

As you can see from what Dean Bennett has to say, the Ann Arbor Conference demonstrates one technique. There are many others, equally informal or more formal in nature. There are no criteria for a method which can be used for every conference purpose. However, whether or not the subject is topical or general, the conference as a vehicle of expression and as a method

(Continued on page 132)

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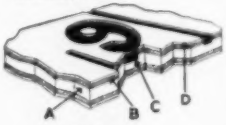

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B—White nickel
C—Black etched markings
D—Plastic overcoat

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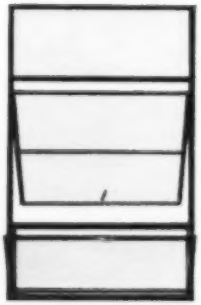

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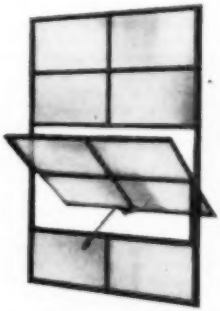
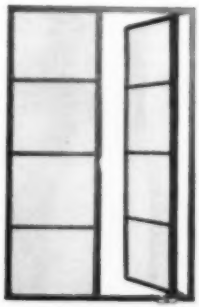


Industrial Steel Windows



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out of school

(Continued from page 130)

of getting educators, practitioners, and specialists together, is accepted and acceptable.

There are several problems which limit the effectiveness of the conference method and for which we have no solution. I pose them for consideration. Perhaps the most difficult one is that there is inadequate reporting of the various meetings. Only occasionally are the prepared papers published and very seldom is the discussion briefed and available for study by those who were unable to attend. It is a universal problem of communication. The architectural schools, as I have said, are mainly responsible, and there is no publication which is available to them for the dissemination of technical papers prepared under their auspices. I have often thought that the Association of Collegiate Schools of Architecture should be implemented with funds for this purpose, making it possible to provide a compendium of the latest collegiate efforts in adult education. The A.I.A. Bulletin is effectively beginning a valuable service in the publication of scientific papers, prepared under auspices of the Institute and sometimes resulting from conferences of its own sponsorship. The architectural periodicals will pick up important conference papers from time to time. But, on the whole, to the uninvited or to those unable to attend, there is little material available. While it is impossible to appraise this deficit in concrete terms, there are obviously real losses in information and effective transferral of ideas. Part of the lag in the development of our architectural crit[illegible] faculties is due to this lack of ease [illegible] communication. Our unhappy "professional" silence on professional criticism, which could in part be dissipated by verbal comment, is lost in the unreported conference discussion. Perhaps the fact that publication might ensue would put a crimp in such discussion, though this was not apparent at Princeton.

Another problem impeding the effectiveness of conferences is the necessary limitation on attendance. Usually only the big wigs of schools and colleges are invited. As you well know, the big wigs too often have abandoned all but token teaching and are devoting their time and energies to the necessary administration of their institutions. However, when a conference comes along, they drop everything to attend while Assistant Professor Zilch, teaching Architectural Astronomy to sophomores, might well have been the perfect man to send and to put the purpose of the conference to work in the particular school. If Assistant President Zilch *has* been sent, the sponsor of the conference

(Continued on page 134)

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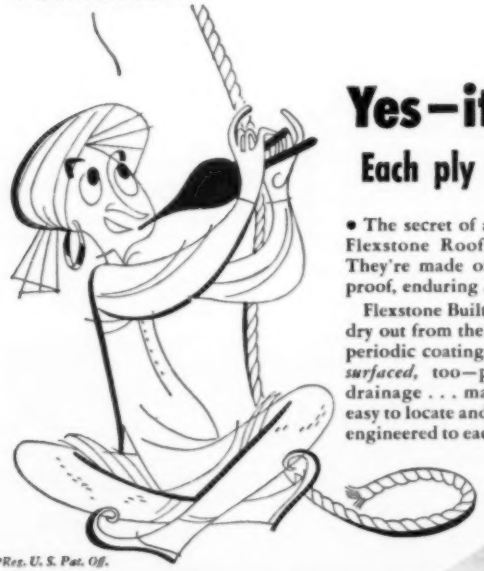
"YES SIREE! AND THE FELTS ARE PERFORATED TO GIVE A SMOOTHER JOB"

"WHAT'S MORE, THOSE FELTS ARE FIREPROOF, ROTPROOF, WEATHERPROOF!"



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BRANCHES IN PRINCIPAL CITIES

out of school

(Continued from page 132)

gets miffed at the idea that his meetings are considered of so little importance that only an underling appears. You can't win!

Another conference problem is connected with the vaudeville circuit. There are always a few big names used as drawing cards. This is natural enough as every sponsor wants a crowd and the audience itself wants to have the feeling that it is listening to important people. A good impresario will mix the big names with the little known expert, and as a result, may from time to time hit on a find of real magnitude. But my own experience as a conferee more often than impresario (and I have been both) leads me to believe that the most difficult problem and the most important for solution is in the selection of chairmen. Few architects know Roberts' Rules of Order and even in the most informal meeting some order is needed. I have often seen the Olympian, jealous or impatient at a nonentity stealing a bit of thunder, get control of the session and use up valuable time just to retain his immortality. It may be entertaining or even exciting at the time, but later, on the long road home, one wonders what it was all about.

Also, the program chairman will often put too many performers on a bill. A good rule is to limit all prepared papers to twenty-five minutes, and I mean limit with a watch and gavel. Chairmen are afraid of being impolite. What are chairmen for? Also, architects are notoriously poor speakers, especially when reading a paper. But the greatest failure in architectural conferences is not so much the speeches as the lack of visual aids. How in the devil you can expect people who specialize in pictorial presentation of ideas to talk their ideas, I don't know. But over and over this is tried. Not a slide! Not a moving picture! Not even a blackboard! Many is the meeting that is held without exhibits and in rooms that can't be darkened. To talk architecture you must see architecture, or at least, a good facsimile thereof.

One of the weirdest concepts of conferencing is the so-called "round table." A group of gents are placed at a rectangular table on the platform, having been told to speak for five minutes on a subject. Then there is to be a debate at the table, and finally, questions from the audience. This, in my opinion, is about as embarrassing a procedure as the ingenious human mind can invent. The speakers always talk too long. Almost never is there a debate, and the most popular speaker, or the one treating the most popular subject or phase of the subject, gets all the questions (if there is time left for questions), while

(Continued on page 136)

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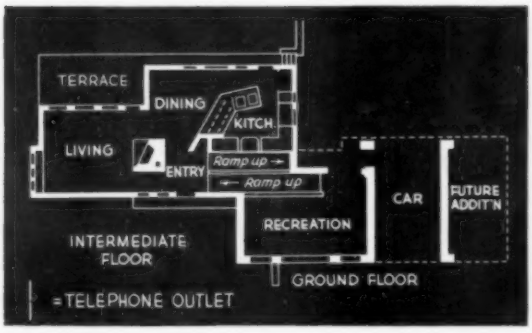

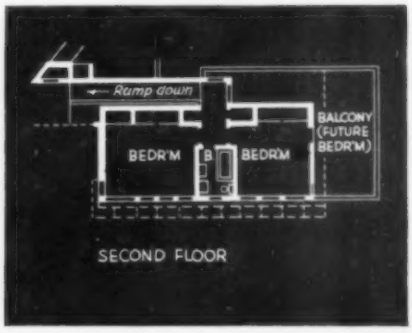

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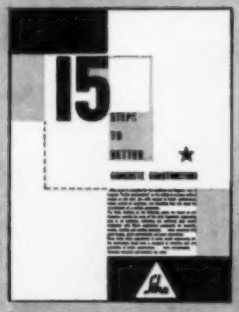

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out of school

(Continued from page 134)

the other guys shift their feet and try not to look at the audience. Rules 1, 2, and 3 are: keep your program simple, select your chairmen carefully, and use pictures.

•

Conferences can be expensive to the giver and the attender. Limitations on expense and travel budgets and the great number of conferences and conventions of architects and planners involve a major cash crisis for many individuals and schools. No school today feels that it can be unrepresented too long at A.I.A. conventions. Wise programming has allied other associations with the A.I.A. meeting time. But even so, it is a major cost effort for most schools to send delegates and the problem is further complicated by interruptions of normal teaching schedules. Students who should be able to attend sessions find they cannot interrupt their classes either. If conferences are held during the summer, attendance is limited by vacations and weather. The result seems to be concentrations of meetings in the early fall and in April and May.

Costs, time, and distances have proved beneficial in the development of a trend toward regional conferences. These are making it possible for the provincial schools to make contact with each other and to draw on the well developed talents of their own localities, talents that would have little means of expression in the larger and more nationalized types of meeting. However, what I have said above still goes for these sessions as well. There is all too little recording of them. The regional conference has great possibilities and needs every encouragement.

In touching briefly on some of the many problems affecting the success of conferences, I do not wish to discourage anyone. The conference method, for all of its limitations, is still one of the architect's best media of inter-communication. I only wish that the results were better known and that new sponsors could learn from the experiences of others. The ultimate, the Architectural Chautauqua, is still to develop.

NOTICE

APPOINTMENT

COL. WM. P. CORNELIUS has been appointed manager of the new district office of GIFFELS & VALLET, INC., and L. ROSETTI, Associated Engineers and Architects of Detroit, Mich. The new office is at 2121 Commerce Bldg., Houston, Texas.

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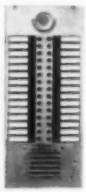

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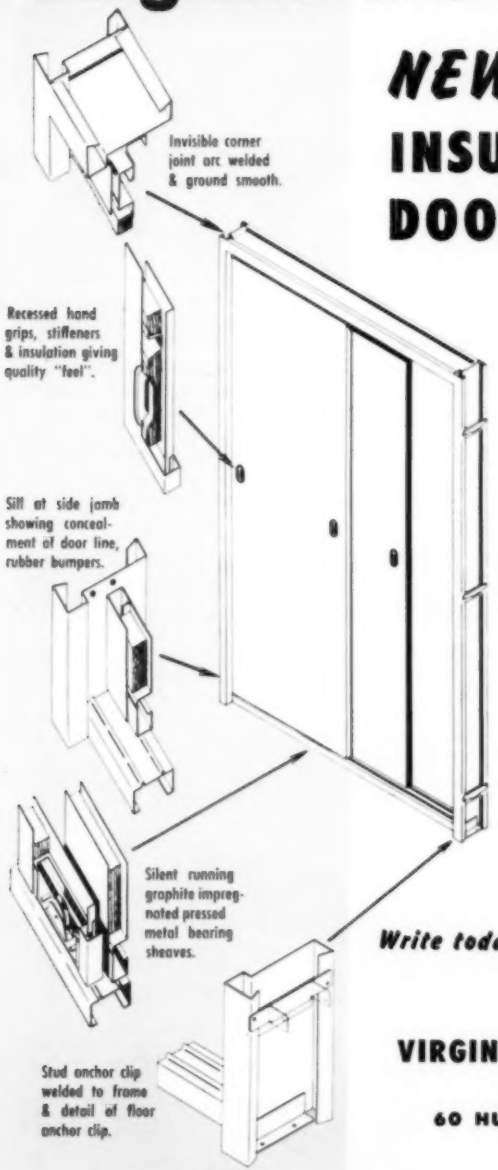
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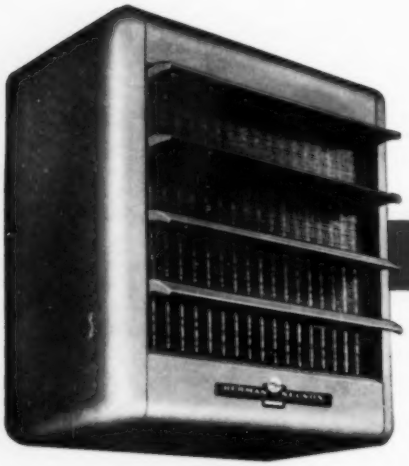

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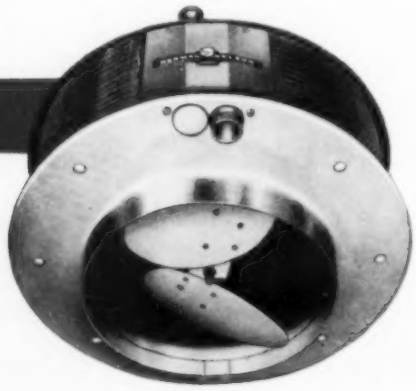

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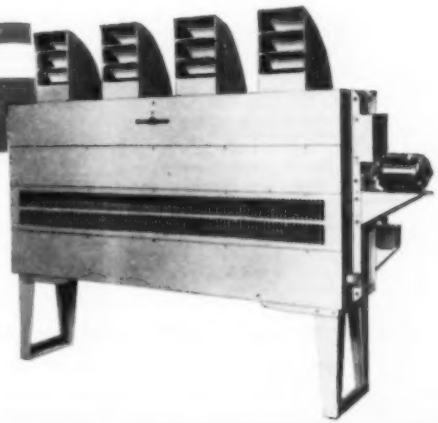

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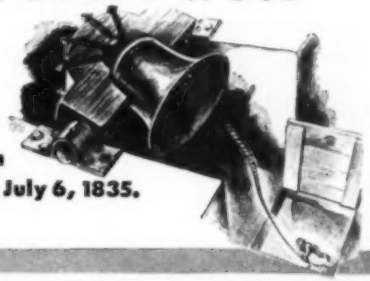

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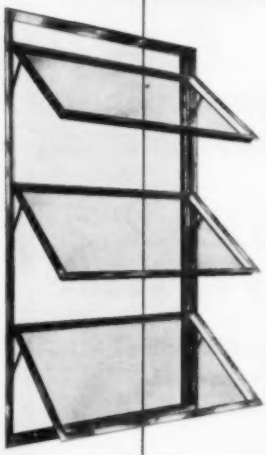

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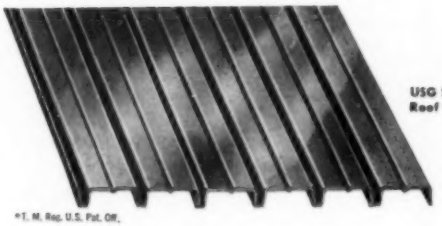

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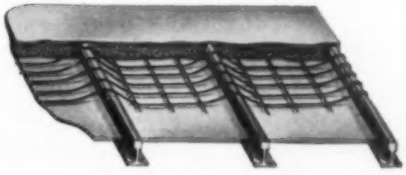

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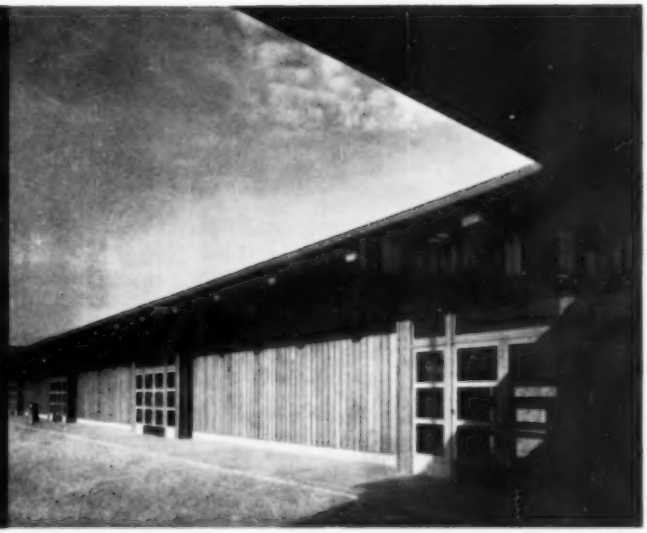

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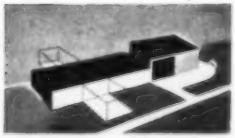

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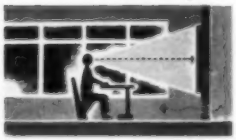

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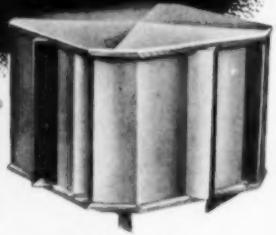

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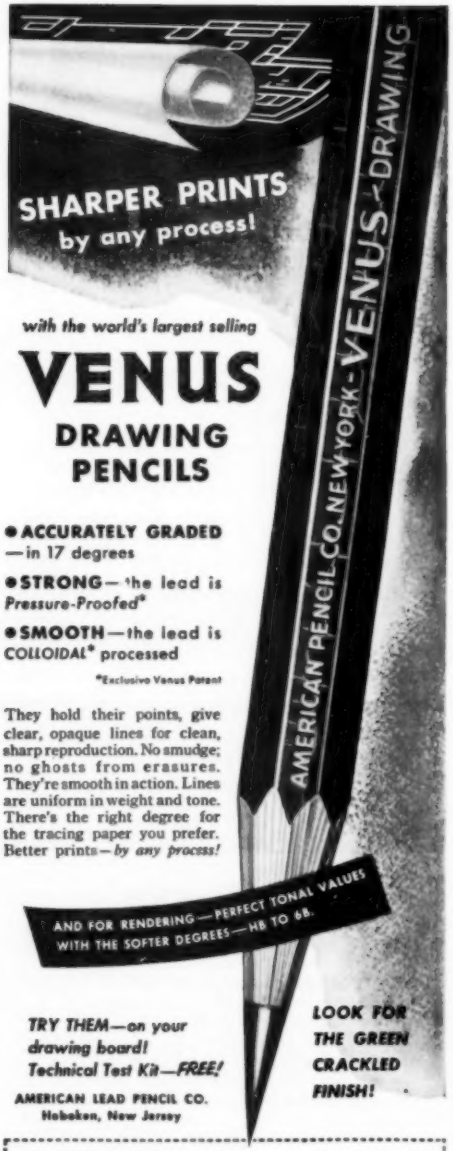

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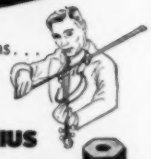

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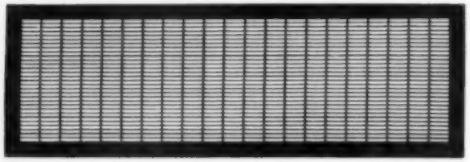

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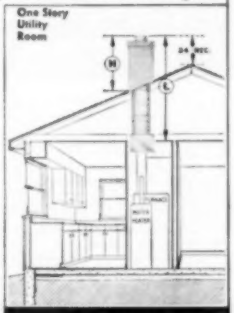

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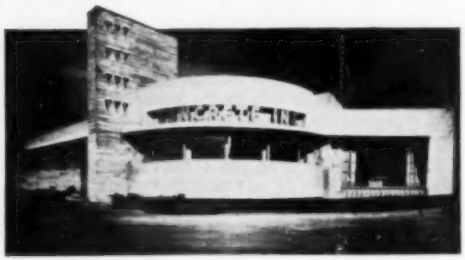

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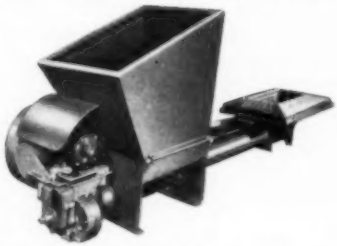

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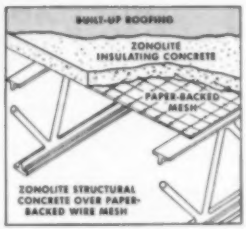

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lagging adhesives provide permanent construction

By HENRY E. WEINGARTNER*

Lagging adhesives rank with steel, brick, and mortar as construction materials designed for heavy duty and hard wear. They must have and retain the mechanical strength to hold insulation permanently in place on cold lines, steam lines, hot vapor lines, furnaces, and ducts. They must resist repeated heating and cooling, high humidity, escaping steam, leaking solvents, occasional wetting, and mechanical impacts. Being on the outside, often in open air, they bear the brunt of weather and wear.

For this reason adhesives that are used in covering insulation of pipelines and of industrial and marine equipment are in quite a different class from the adhesives intended for such temporary and expendible uses as labels, envelopes, and cartons.

Because of painstaking improvements in recent years lagging adhesives are now available that have outstanding records in industrial use—and misuse. Instances are easy to cite.

An insulated pipeline running below an outfitting dock at Swan Island, Portland, Oregon, had been under a constant drip of water from the dock above for five years without damage. A climax to this record was the disastrous flood of the Columbia and Willamette Rivers. The pipeline was submerged in the swirling waters for three weeks. Lagging adhesives kept the insulation undamaged.

At an oil refinery in California a battery of solvent evaporators, operating at 900F and standing in the open without protection from the elements, developed leaks and spills at valves and fittings, with ruin to the insulation, so frequently that re-lagging was formerly considered normal and only the cheapest materials were used. But with modern lagging adhesives, which do resist such occasional leaks, the battery has been operating for more than a years with no damage except to the paint.

Equally impressive is a test made at another refinery to compare the fire resistance of adhesive lagging with that of a wire-mesh cover for insulation. Two pipes were identically lagged with 85 percent magnesia; then one was wrapped with fine wire mesh, the other with canvas cemented with lagging adhesive. Both were placed directly in flames of burning gasoline. The insulation within the wire mesh crumbled and fell apart, endangering the bare pipe. On the other pipe the canvas burned away but the adhesive kept the magnesia intact and protected the pipe throughout the blaze.

In the insulation of high-temperature furnaces a layer of canvas, saturated with lagging adhesive, placed between two outer layers of block insulation has been successfully used to reduce hot air circulation between layers and thus permit a reduction in the total insulation needed.

The success of modern lagging adhesives is based on the strength and permanence of plasticized synthetic resins. While still in liquid form the adhesive clings to the surfaces that are to be joined, then hardens into a strong solid that resists humidity, moderate temperatures, most solvents, and more than ordinary mechanical wear.

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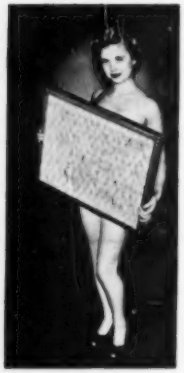


Perhaps in the heat of the summer it would be a good time to use some items from my collection of cheesecake. I'm sure that readers would rather look at these this month than listen to soggy words of wisdom from the editor.

Starting at the left, the cute little one is using a new Bard Manufacturing Co. air filter in place of a fan. Yon brunette admires a Typhoon 5-ton air conditioner. The toothy gal is pretending that a batch of new G.E. bulbs designed for bare exposure use are mushrooms. Don't ask me why. My favorite, though, is really Miss Marlene Reilly, who just happened to be picked up in the first scoopful of earthy material on the site of Chicago's new Sheraton Apartment Building, says William R. Harshe Associates, Inc., for Enger, Barnett & Hurwith, insurance organization sponsoring the project. The young lady whose legs are not shown is protecting herself with a Carey Double-Coverage Windmaster shingle.

•

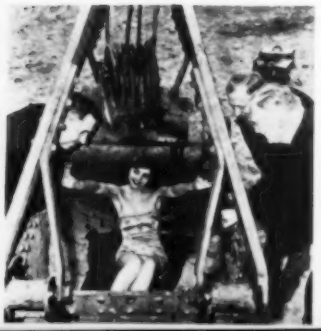
There has been some good writing recently on the subject of architecture as a language. (This is not going to be some of it.) The vocabulary of visual expression and perception is a different one, of course, from the spoken words which make up the language of communication by aural and audial methods, and yet the similarities are fairly obvious. There are common expressions, which change with time and with differences in location. There are vulgar expressions, the language of the common man; there are sophisticated expressions, used and understood by a self-selected elite; there are delicate ways of saying things, and brutal ways, in architecture as in conversation. And in both instances, none of the vocabulary is fixed: it changes as needs change; as men find better ways of communicating among themselves; as the things they want to say to one another become different; as clever people invent new techniques of expression; as social conditions require new means of expression.

Enrichment of one's vocabulary is one of the most satisfying methods of growth that a mature individual can experience, and that can come only by study and, better, by participation and experience. Traveling always with the same group, which uses the same expressions endlessly and unvariedly, is apt to be stultifying, and seeing the same building (or buildings designed in the same tiresome vocabulary) over and over, without experiencing new expressions, can be equally limiting in the sense of visual communication in that field.

That is why one good building using an enriched, contemporary, live and imaginative vocabulary of design can do more to simulate the visual understanding of the members of a community than any amount of description (verbal expression rather than visual) or magazine publication (two-dimensional rather than three-dimensional visual perception). A good modern house in a town that has had only traditional work previously, visited by friends and neighbors, opens the way to an enriched expression for that town. A well-designed hospital or school or office building or store can do the same thing. The vocabulary increases, and the understanding of the vocabulary possibilities increases at a greater ratio.

All of which leads up to the simple fact that someone told me last night that he had seen and been in and experienced the new pleasures of a good modern house for the first time. "Brother," he said, "I'm sold. I'm completely sold. And I was a die-hard." You can't have an act of communication unless at least two people wish to communicate, and unless a medium of communication is available and is understood. When those factors are all attained, brother, there's going to be talk—and understanding.

Norman McGrath



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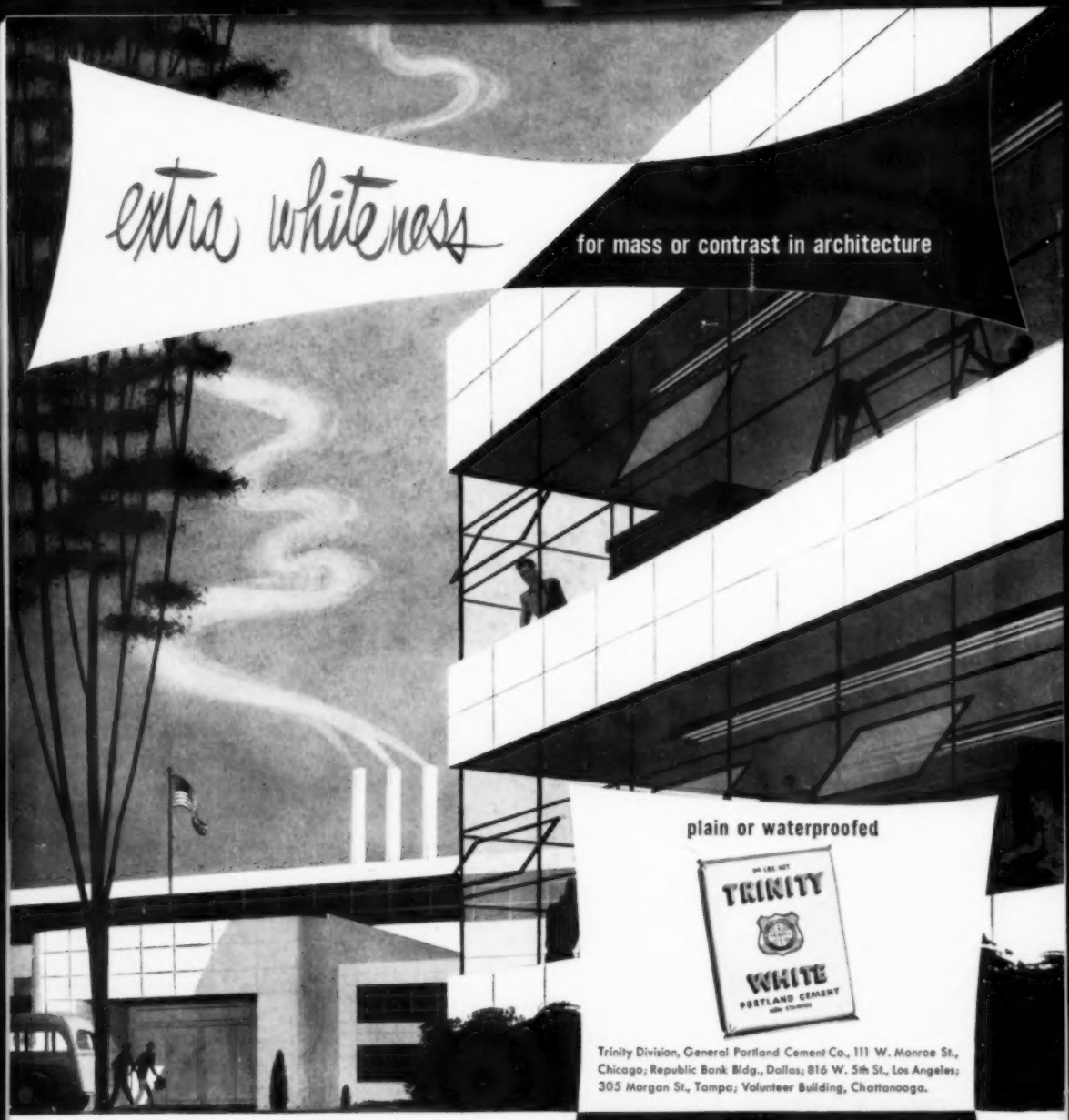

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